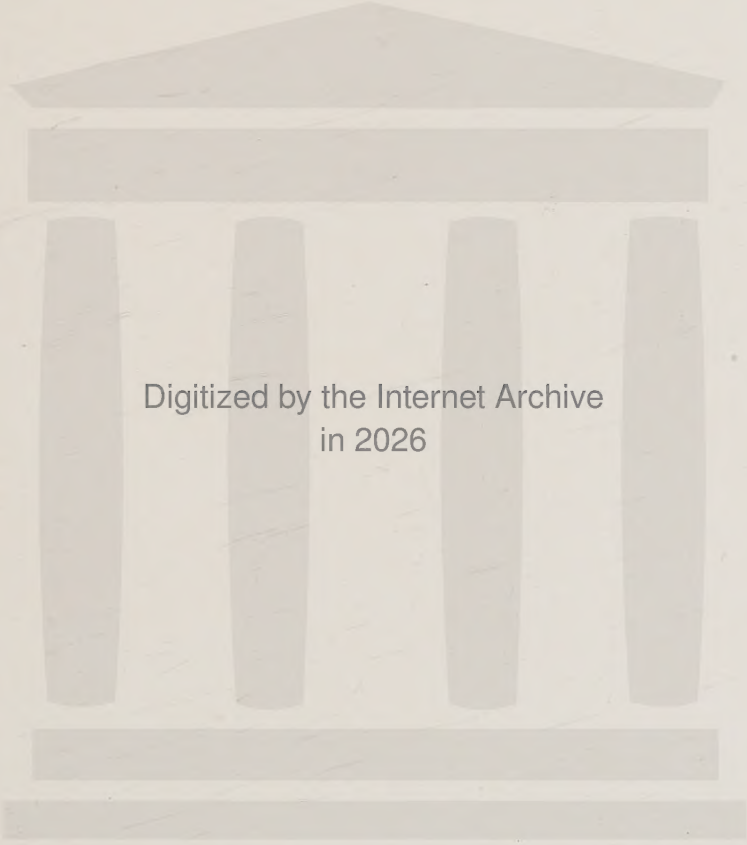
TREES SHRUBS VINES AND HERBACEOUS PERENNIALS

BY

JOHN KIRKEGAARD

TREES, SHRUBS, VINES AND HERBACEOUS PERENNIALS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A Formal Garden Effect with Evergreens, Deciduous Shrubs and Herbaceous Perennials

A Practical Handbook of

TREES SHRUBS VINES

AND

HERBACEOUS PERENNIALS

by
John Kirkegaard

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Copenhagen, Denmark
Latterly Twenty Years in American Forestry
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HARDY AND ORNAMENTAL VARIETIES
THEIR CHARACTERISTICS, USES
AND TREATMENT

"When ye hae naething else to do, ye may be aye sticking in a tree. It will be growing when ye're sleeping"

SIR WALTER SCOTT

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PREFACE.

IN THE preparation of this volume, the purpose continually in the mind of the author has been to afford a simple and convenient reference book of the ornamental trees and plants hardy in this climate; simple, yet concise, a guide valuable not only to the amateur, but to the busy architect, gardener or plantsman as well. Its form has been suggested by the needs encountered during a long period of private and commercial association with plants, when the material here set forth would at times have been most useful.

It is as a reference book that it will take its place. Exhaustive descriptions, variations from type, and more technical matter must be sought among the horticultural encyclopædias. In these pages, however, will be found general cultural information and directions sufficient for all ordinary requirements. When and how to plant, pruning, spraying and cultivation are each treated comprehensively. Propagation has not been touched upon, as it is a generally accepted fact that trees and plants, of sizes suitable for planting in their permanent places, can be more easily obtained from reliable nurserymen, and give, as a rule, better satisfaction to the amateur gardener. Trees, shrubs and plants have been classified according to their suitability for certain purposes. Space is given to the making and proper care of lawns. The more common injurious insects are described, and means for their extermination are discussed. In short, the author has earnestly endeavored to include whatever information the average householder needs to enable him to make a selection of such trees and plants as are best adapted to his purposes, and to aid him in properly caring for the grounds about his home.

Regarding the plants themselves, doubtless many omissions will be found from the more or less familiar sorts; but let it here be said that only such are included as have proved their worth under ordinarily favorable conditions of cultivation and climate.

Authorities will be found who differ in many cases from the facts here presented, especially in regard to ultimate heights, times of flowering, and habits of growth; but it must be remembered that plants are highly sensitive to environment, and that external influences, favorable or otherwise, determine their development. Here are tabulated the personal observations of the author as he has found the plants under average conditions. The indicated heights of the various shrubs, for instance, are such as they attain in well-kept border-plantings, rather than the maximum growth found in individual specimens planted singly.

The beautifying of home grounds is rapidly becoming a habit among a great majority of our people. It is a habit happily encouraged by influences on every hand. By "home grounds" is meant not alone the spacious surroundings of the suburban mansion, but equally the less extensive village "lot" or city "back yard." Possibilities are ever present. Even a few square feet, given the necessary care, will support something that grows into beauty. An unsightly heap of stones, of promiscuous character and lineage, may be transformed into a garden of plants whose character suits them to such forbidding surroundings. A few helpful suggestions may perhaps show the way to surprising improvement; and the satisfaction thus attained is a reward to be coveted.

If the author has succeeded in so presenting such suggestions that they will prove of benefit to his readers, he will feel that his efforts have not been in vain.

The botanical names given in this book are based upon the nomenclature accepted in Bailey's Cyclopedia of American Horticulture and the Index Kewensis. The popular names are those in most general usage. In the capitalization of the specific names the rules of the recent Botanical Congress of Vienna have been followed and only those specific names which are derived from the names of persons or those which have been used as generic names have been capitalized.

Professor E. A. White and Dr. H. T. Fernald of the Mass. Agricultural College have rendered valuable assistance in the

preparation of this book. Prof. White's editorial work has been especially referable to correctness of nomenclature. Dr. Fernald's editorial work has been especially referable to the subject of "Injurious Insects, Pests and their Treatment."

To these gentlemen we extend our hearty thanks.

THE AUTHOR.

ILLUSTRATIONS

With Botanical and Common Names.

Characteristics, uses and treatment of the illustrated trees, shrubs, vines and herbaceous perennials may be found by reference to the botanical name of each in the regular classification tables.

No attempt has been made to show merely pretty pictures, but to illustrate many of the uncommon or partially known species and varieties.

Picea Engelmanni—Engelmann's Spruce

Aquilegias—Columbines

Veronica longifolia var. subsessilis—Speedwell

Pyrus floribunda—Flowering Crabapple

Hemlocks and Mountain Laurel

Hibiscus syriacus fl. pl.—Double Rose of Sharon

Chionanthus virginica—White Fringe

Liatris pycnostachya—Blazing Star

Osmunda regalis—Royal Ferns

Tulips

Shasta Daisies

Dictamnus albus—Gas Plant

Fagus sylvatica var. pendula—Weeping Beech

Berberis Thunbergii Hedge

Lonicera japonica var. Halliana—Hall's Honeysuckle

Salix babylonica—Weeping Willow

Coreopsis lanceolata—Tickseed

Wistaria chinensis--Chinensis Wistaria

An Avenue of Poplars

Calycanthus floridus—Carolina Allspice

Juniperus virginiana—Red Cedar

Syringa vulgaris var. alba White Lilac

Clematis paniculata—Panicle-flowered Clematis

Clethra alnifolia—Sweet Pepperbush

Euonymus europæus—European Spindle Tree

Leucothoë catesbæi—Leucothoë

Lilies in the Herbaceous Border

Catalpa speciosa

Digitalis purpurea—Foxgloves

An Old-fashioned Box-bordered Garden

Water Margin Planting

Vine Effect with Dutchman's Pipe and Clematis paniculata

Cypripedium spectabile.—Showy Lady's Slipper

A Border Planting of Foxgloves and Sweet-Williams

Iris germanica—German Iris

Hibiscus moscheutos var. Crimson Eye—Crimson-eyed Hibiscus

Fagus sylvatica var. heterophylla—Fern-leaved Beech

Kalmia latifolia—Mountain Laurel

Rosa Baltimore Belle and Eulalia gracillimus

Foxgloves, Canterbury Bells and Sweet-Williams

A Formal Italian Garden

Astilbe japonica var. grandiflora—Astilbe or Spiræa

A Natural Planting of Rhododendrons

Yucca filamentosa– Adam's Needle

Deutzia gracilis

A Vista Between Rhododendrons

A Mixed Border of Shrubs and Herbaceous Plants

A Shrub Boundary Border

Magnolia Soulangeana—Soulange's Magnolia

A Rock Garden

Pinus montana var. mughus—Mugho Pine

Roadside Vine Effects

Massed Hydrangeas

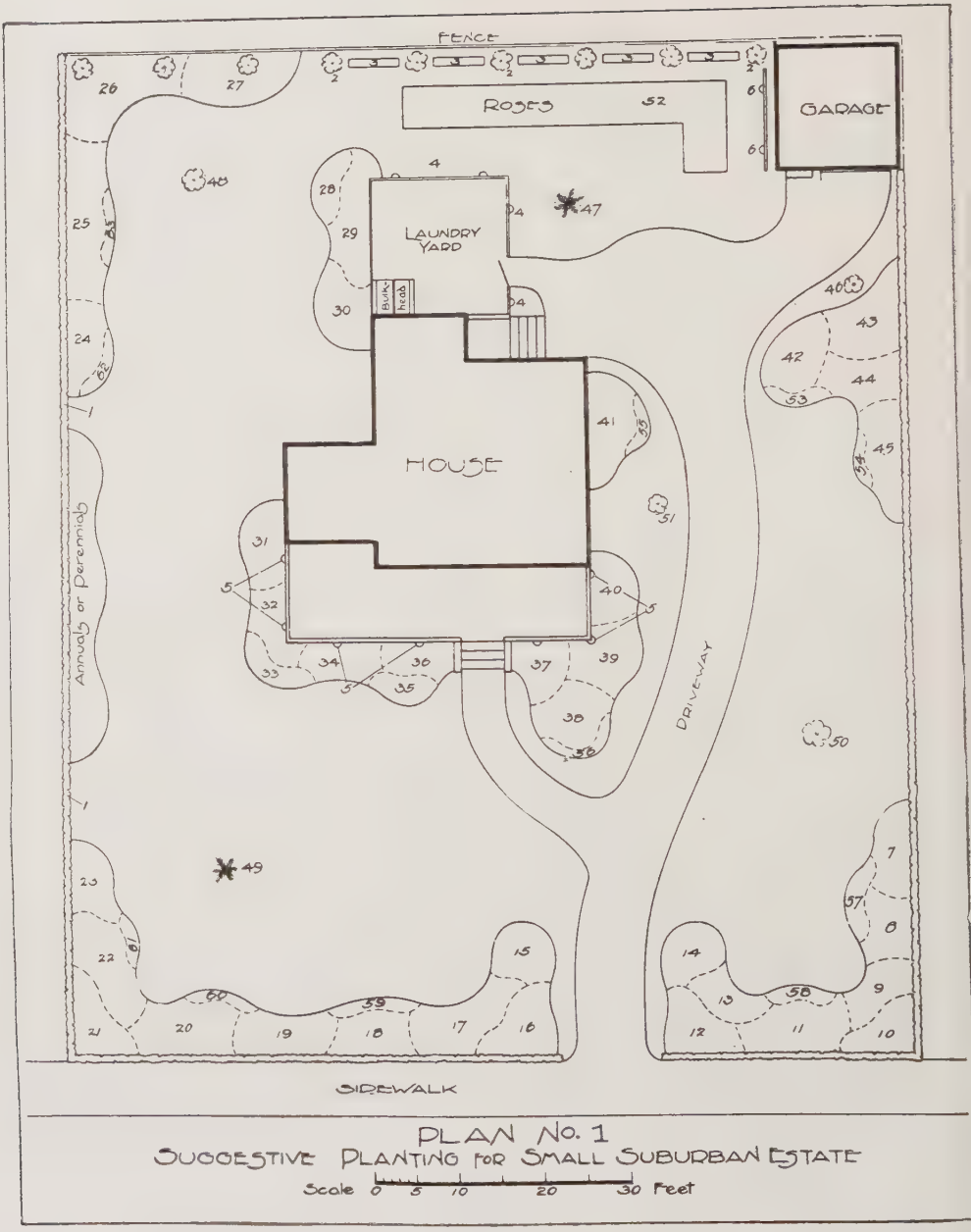
Viburnum tomentosum var. plicatum—Japanese Snowball

Rhododendrons—Aquatic Garden Effects

Campanula medium—Canterbury Bells

Ulmus Americana — American Elm

Driveway Treatment



PLAN No. 1

SUGGESTIVE PLANTING FOR SMALL SUBURBAN ESTATE

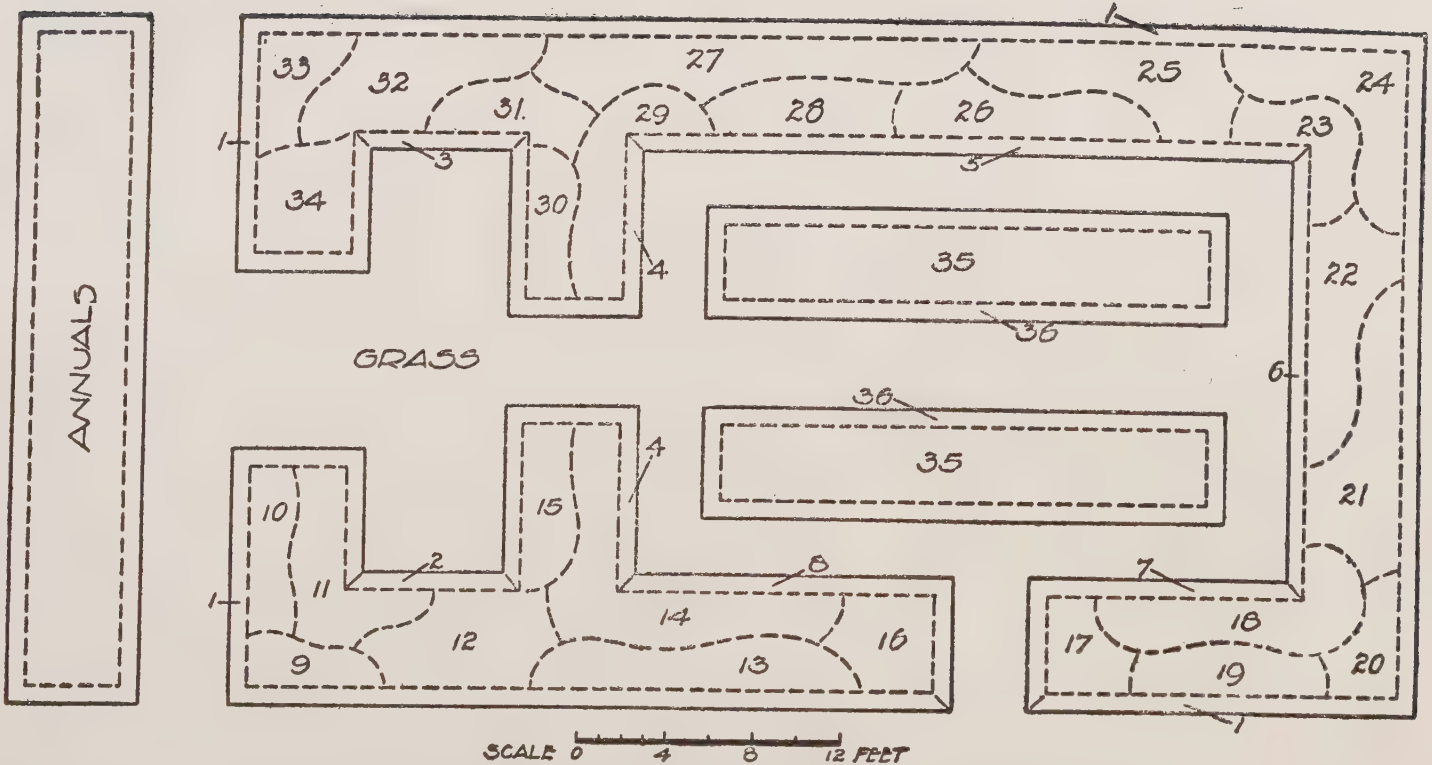
Scale 0 5 10 20 30 Feet

PLANTING LIST FOR PLAN NUMBER ONE.

List No.	No. of Plants	
1	290	*Berberis Thunbergii.* Japanese Barberries. Or *Ligustrum ovalifolium.* California Privets, to be planted 1 foot apart.
2	9	*Populus nigra var. italica.* Lombardy Poplars.
3	25	*Althæa rosea.* Hollyhocks, to be planted 1 foot apart.
4	4	Vines as follows:
		1 *Lonicera japonica var. Halliana.* Hall's Honeysuckle.
		1 *Clematis paniculata.* Panicle-flowered Clematis.
		1 *Ampelopsis quinquefolia.* Virginia Creeper.
		1 *Lycium halimifolium.* Matrimony Vine.
5	7	Vines as follows:
		1 *Wistaria chinensis.* Chinese Wistaria.
		1 *Tecoma radicans.* Trumpet Honeysuckle.
		1 *Clematis Jackmanni.* Jackman's Hybrid Clematis.
		1 *Actinidia polygama.* Japanese Actinida.
		1 Dorothy Perkins Rose.
		1 Crimson Rambler Rose.
		1 *Aristolochia macrophylla.* Dutchman's Pipe.
6	2	Early ripening Grapes.
7	8	*Spiræa bumalda, var. A. Waterer.* Anthony Waterer Spiræa.
8	6	*Cydonia japonica.* Japanese Quince.
9	5	*Hydrangea paniculata.* Fall-flowering Hydrangea.
10	5	*Lespedeza bicolor.* Bush Clover.
11	7	*Forsythia suspensa var. fortunei.* Drooping Golden Bell.
12	6	*Kerria japonica.* Shrubby Globe-flower.
13	5	*Rosa rugosa.* Japanese Rose.
14	7	*Spiræa Thunbergii.* Thunberg's Spiræa.
15	7	*Stephanandra flexuosa.* Stephanandra.
16	6	*Ligustrum ibota.* Japanese Privet.
17	8	*Hydrangea paniculata var. grandiflora.* Large-flowered Fall Hydrangea.
18	5	*Calycanthus floridus.* Carolina Allspice.
19	6	*Lonicera tatarica.* Tartarian Honeysuckle.
20	7	*Elæagnus longipes.* Oleaster.
21	5	*Diervilla florida.* Weigelia.
22	7	*Prunus japonica.* Flowering Almond.
23	4	*Myrica cerifera.* Bay-berry.
24	5	*Rosa rugosa var. alba.* White Japanese Rose.
25	10	*Amorpha fruticosa.* False Indigo.
26	9	*Philadelphus Coronarius.* Sweet-scented Syringa.
27	8	*Syringa vulgaris and persica.* Various varieties. Mixed Lilacs.
28	4	*Spiræa japonica var. alba.* White-flowered Japanese Spiræa.
29	8	*Viburnum opulus.* Mountain Cranberry.
30	6	*Spiræa prunifolium.* Bridal Wreath.
31	6	*Spiræa bracteata.* Round-leaved Spiræa.

List No.	No. of Plants	
32	6	*Sambucus nigra var. aurea.* Golden-leaved Elder.
33	4	*Ribes alpinum.* Alpine or Mountain Currant.
34	5	*Euonymus alatus.* Winged Burning-bush.
35	3	*Spiræa Thunbergii.* Thunberg's Spiræa.
36	5	*Acanthopanax pentaphylla.* Five-leaved Aralia.
37	5	*Acanthopanax pentaphylla.* Five-leaved Aralia.
38	6	Prairie Roses.
39	6	*Forsythia suspensa.* Drooping Golden Bell.
40	5	*Viburnum tomentosum var. plicatum.* Japanese Snowball.
41	8	*Rhodotypus kerrioides.* White Kerria.
42	7	*Deutzia scabra crenata.* Rough-leaved Deutzia.
43	6	*Rhus cotinus.* Smoke-bush.
44	5	*Chionanthus virginica.* White Fringe.
45	6	*Cornus alba.* Red-barked Ozier.
46	1	*Catalpa speciosa.* Southern Catalpa.
47	1	*Picea alba.* White Spruce.
48	1	Apple Tree.
49	1	*Picea pungens.* Blue Spruce.
50	1	*Fagus sylvatica var. purpurea Riversi.* Rivers' Purple Beech.
51	1	*Betula alba var. pendula laciniata.* Cut-leaved Birch.
52	36	Best Hybrid Perpetual Roses.
53	6	Hardy Asters.
54	5	*Achillæ ptarmica var.* The Pearl.
55	6	*Coreopsis lanceolata.* Lance-leaved Tickseed.
56	8	*Sedum spectabile.* Showy Sedum.
57	8	*Scarlet Phlox paniculata.* Panicled Hardy Phlox.
58	5	*Delphiniums.* Various species. Perennial Larkspurs.
59	6	*Pæonia officinalis.* Pæonias.
60	6	*White Phlox paniculata.*
61	5	*Veronica longifolia var. subsessilis.* Speedwell.
62	8	*Chrysanthemum leucanthemum var. hybrida.* Shasta Daisies.
63	6	*Aquilegia chrysantha* and various species of tall Columbines. Tall Columbines.

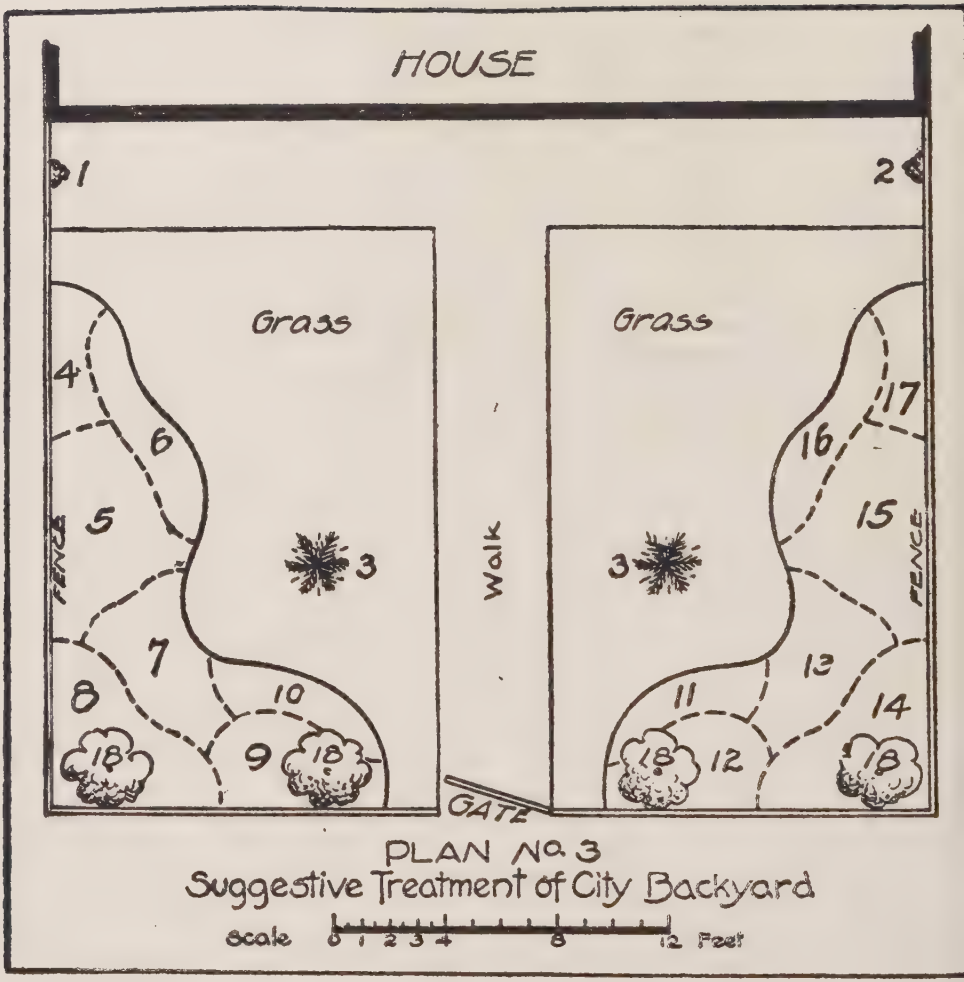
Tulips, Narcissuses, Hyacinths, Scillas and Snowdrops may be planted among shrubs and near edge of beds.



ROSE AND HERBACEOUS GARDEN

PLANTING LIST FOR ROSE AND HERBACEOUS GARDEN.

List No.	No. of Plants	
1	203	*Festuca glauca.* Blue Fescue Grass, to be planted 8 inches apart.
2	12	*Dianthus barbatus var. White Reserve.* Sweet-William.
3	12	*Dianthus barbatus var. Abbotsford.*
4	24	*Lychnis viscaria var. splendens.* German Catchfly.
5	36	*Viola odorata.* Hardy Russian Violets.
6	30	*Armeria maritima var. robusta.* Sea Pink.
7	27	*Viola cornuta.* Horned Violet.
8	22	*Veronica supria.* Bastard Speedwell.
9	12	*Gaillardia aristata.* Perennial Gaillardia.
10	8	*Phlox paniculata var. Annie Cook.* Perennial Phlox.
11	14	*Lupinus polyphyllus.* Lupine.
12	11	*Phlox paniculata var. Coquelicot.* Perennial Phlox.
13	15	*Platycodon grandiflorum.* Japanese Bell-flower.
14	18	*Sedum spectabile.* Showy Sedum.
15	12	*Chrysanthemum leucanthemum hybridum var. Alaska.*
16	12	*Sedum spectabile.* Showy Sedum.
17	6	Hardy Chrysanthemums, yellow.
18	14	*Statice latifolia.* Sea Lavender.
19	10	*Astilbe japonica var. Queen Charlotte.* Astilbe or Spiræa.
20	8	*Œnothera fruticosa var. Youngii.* Young's Sundrops.
21	12	*Phlox suffruticosa var. Miss Lingard.* Southern Phlox.
22	10	*Monarda didyma.* Oswego Tea.
23	10	*Physostegia virginiana.* False Dragon-head.
24	16	*Gypsophila Stevenii.* Dwarf Baby's-breath.
25	15	*Veronica longifolia.* Long-leaved Speedwell.
26	12	*Astilbe japonica var. floribunda.* Astilbe or Spiræa.
27	24	*Asclepias tuberosa.* Butterfly Weed.
28	11	*Physostegia virginiana var. alba.* White False Dragon-head.
29	12	*Sedum maximum var. hæmatodes.* Purple-leaved sedum.
30	6	*Papaver orientale.* Oriental Poppies, and
	4	*Lilium auratum.* Gold-banded Lily.
31	12	*Campanula medium.* In variety. Canterbury Bells.
32	14	*Phlox paniculatum.* White. Perennial Phlox.
33	6	*Aquilegia.* Various species. Columbines.
34	10	*Lobelia cardinalis.* Cardinal Flower.
35	50	Hybrid Perpetual Roses in variety.
36	104	Baby Rambler Roses, to be planted 1 foot apart.


HOUSE
1
2
Grass
Grass
4
6
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3
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8
10
9
18
18
Walk
3
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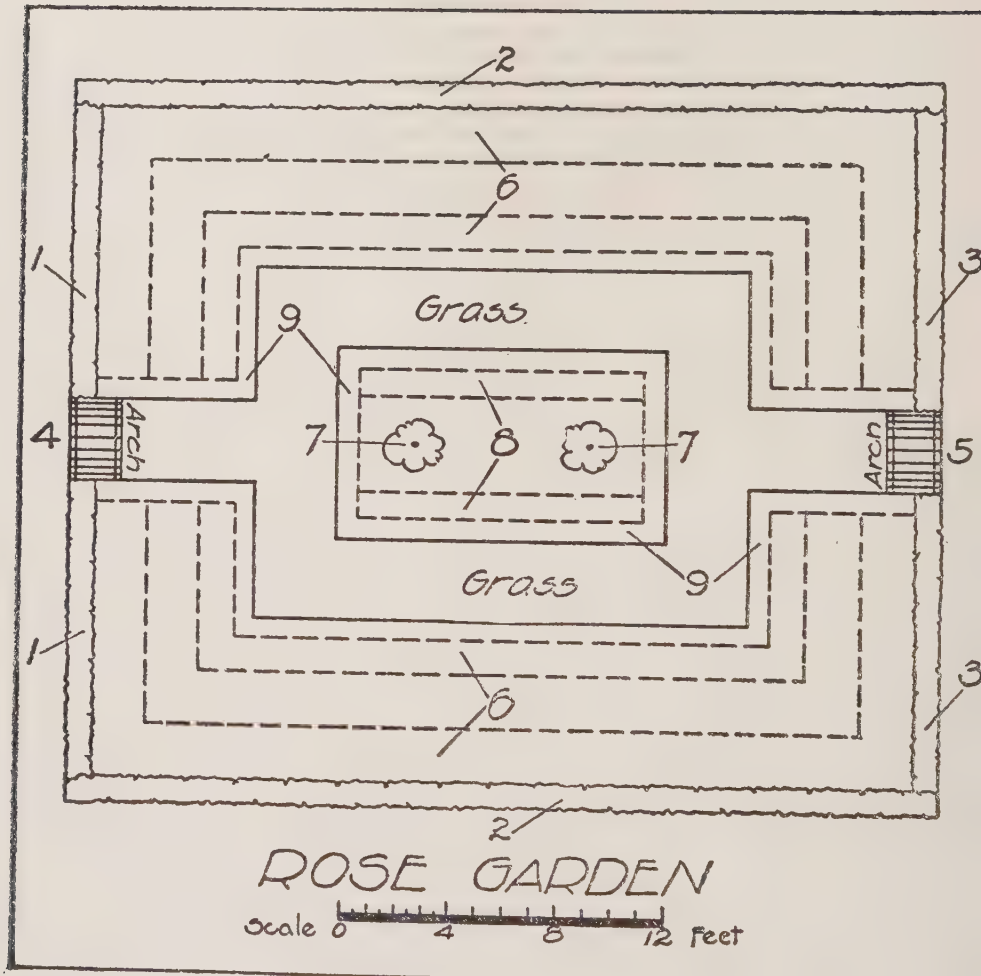
11
14
12
18
18
FENCE
FENCE
GATE
PLAN No 3
Suggestive Treatment of City Backyard
Scale 0 1 2 3 4 8 12 Feet

PLANTING LIST FOR PLAN NUMBER THREE.

List No.	No. of Plants	
1	1	*Wistaria multijuga.* Loose-clustered Wistaria.
2	1	*Tecoma radicans.* Trumpet Honeysuckle.
3	2	*Juniperus communis var. hibernica.* Irish Juniper.
4	3	*Berberis Thunbergii.* Japanese Barberry.
5	4	*Ligustrum ovalifolium.* California Privets.
6	6	*Phlox paniculata.* In variety. Perennial Phlox.
7	3	*Rhododendron catawbiense hybridum.* Hybrid Rhododendrons.
8	3	*Euonymus europæus.* Strawberry Tree.
9	3	*Forsythia suspensa var. fortunei.* Fortune's Golden Bell.
10	6	*Coreopsis lanceolata.* Tickseed.
11	15	*Iris germanica.* German Iris in variety.
12	3	*Rosa rugosa.* Japanese Rose.
13	3	*Kalmia latifolia.* Mountain Laurel.
14	3	*Viburnum opulus.* Mountain Cranberry.
15	4	*Symphoricarpos racemosus.* Snowberry.
16	5	*Pæonia officinalis.* In variety. Garden Pæonies.
17	3	*Kerria japonica.* Globe-flower.
18	4	*Populus nigra var. italica.* Lombardy Poplar.



ROSE GARDEN

Scale 0 4 8 12 Feet

PLANTING LIST FOR ROSE GARDEN.

List No.	No. of Plants	
1	14	Persian Yellow Roses, planted 1½ feet apart.
2	20	White Moss Roses, planted 1½ feet apart.
3	14	Harrison Yellow Roses, planted 1½ feet apart.
4	2	Dorothy Perkins Roses for arch.
5	2	Lady Gay Roses for arch.
6	74	Hybrid Perpetual Roses, planted 2 feet apart.
7	2	Crimson Rambler Roses in tree shape.
8	16	Hybrid Tea Roses, planted 1½ feet apart.
9	100	Baby Rambler Roses, planted 1 foot apart.

ABBREVIATIONS.

A. Very hardy.
B. Requires a sheltered position.
C. Requires protection until well established.
D. Rapid in growth.
E. Slow in growth.
F. Prefers a moist soil.
G. Thrives in any good soil.
H. Thrives best in a light warm soil.
I. Particularly good for cutting.
S. Shrub, or generally grown in bush-form.
T. Tree or generally grown in tree-form.
X. (Found in Rose-List.) Indicates best flowering varieties.
Y. (Found in Lilacs.) Indicates largest and best blooms.

GLOSSARY.

Capsule, A many-celled seed-vessel.
Cleft, Divided, split, parted.
Conical, Having the form of a cone.
Decumbent, Reclining, but with tips ascending.
Edible, Fit to be eaten as food.
Fastigiate, Branches erect and close together.
Frond, Leaf of a fern.
Glaucous, A dull green passing into gray blue.
Globose, Round, spherical, globular.
Herbaceous Perennial, A soft stemmed plant, which perishes down to the root annually.
Hybrid, A variety produced from the mixture of two species.
Lobed, Divided to the middle into parts distant from each other, with convex margins.
Mulch, A light covering, as hay, straw or leaves.
Palmate, Having the shape of a hand.
Panicles, Scattered fruit or flowers. Clusters on peduncles variously sub-divided.
Pedicels, Short flower or fruit stalks.
Pendulous, Hanging, drooping.
Petiole, The stem of a leaf, connecting the leaf with the plant.
Pinnate, Compound, feather-shaped.
Plumose, Feathery.

Procumbent,	Trailing, prostrate, lying on the ground.
Prostrate,	Lying flat upon the ground.
Pubescent,	Downy.
Pyramidal,	Having the shape of a pyramid.
Raceme,	A cluster of flowers or fruit.
Recurving,	Bending toward the ground.
Sepal,	A part of the calyx or perianth of a flower.
Sterile,	Barren, unfruitful.
Tendril discs,	Claspers given to climbing plants for supports.
Tubereus,	Round, fleshy, underground stems, as, for example, potatoes
Trifoliate,	Having three leaves.
Tubular,	Having the form of a tube or pipe.
Umbel,	A flat-topped flower cluster.
Whorl,	Leaves or flowers arranged around a stem, in the same plane with each other.

DESCRIPTION AND CLASSIFICATION OF SPECIES.

Explanation of the italic capitals used in "remarks" column will be found on page 140

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Abies balsamea	Balsam Fir	2	50-60			*T.* Foliage sweet-scented, dark green. Branches horizontal, forming a broad, regular pryamidal tree. Inclined to lose the lower branches early and to become unsightly with age. *A. D. F.*
Abies Fraserii	Silvery Balsam	2	40-50			*T.* Foliage dark green above and silvery underneath. In habits similar to the preceding. *A. D. F.*
Abies cilicica	Cilician Fir	2	20			*T.* Compact in growth. Foliage very dark and glossy. *B. E. G.*
Abies concolor	White Fir	2	40-50			*T.* A beautiful evergreen with large foliage, which in some specimens is silver-blue in color. *A. D. G.*
Abies nobilis var. glauca	Washington Blue Fir	2	15-20			*T.* Open in growth. Branches horizontal, forming a flat, round head. Foliage silvery blue. *C. E. H.*
Abies Nordmanniana	Nordman's Fir	2	30-40			*T.* Symmetrical in growth with dark, coarse foliage, which is silvery underneath. *B. C. D. H.*

Abies pinsapo	Spanish Fir	2	15-20			*T.* Short, broad, sharp-pointed and light green foliage, spreading from all sides of the stiff branchlets. Open growth. *C. E. G.*
Abies Veitchi	Veitch's Silver Fir	2	30			*T.* Foliage very large, dark green above and silvery underneath. One of the best of the group. *A. D. G.*
Acanthopanax pentaphylla (Aralia)	Five-leaved Aralia	1	7	Yellow	June	*S.* An attractive shrub with glossy deep green leaves and light gray twigs in winter. Flowers insignificant borne in racemes. Excellent for dry and sandy spots. *A. D. G.*
Acanthus mollis	Bear's Breech	4	3-4	Purple	July & Aug.	Suitable for backgrounds of borders and for sub-tropical effects. Leaves large, rough and beautifully outlined. *C. H.*
Acanthus mollis var. latifolia	Bear's Breech	4	3-4	Purple	July & Aug.	Much similar to the preceding, but with a more glossy, smooth foliage. *C. H.*
Acer campestre	Cork-barked Maple	1	30			*T.* Good for planting as an undergrowth or on dry ground. Leaves dull green. Dense in growth. *A. E. G.*
Acer japonicum		1	10-15			*S.* Upright in growth, with stout, short branches. Leaves nine to eleven lobes, light green. The hardiest of the Japanese maples. *C. E. G.*
Acer japonicum var. aureum	Golden Japanese Maple	1	10-15			A form of the above with bright yellow leaves which hold their color the greater part of the summer. *C. E. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Acer lætum var. rubrum	Colchicum Maple	1	15-20			*T.* Bark brilliant red. Foliage large and open. Spreading in growth and good for shelter planting. *C. D. G.*
Acer Negundo	Ash-leaved Maple or Box Elder	1	40-50			*T.* Of spreading growth and excellent for shelter belts. Leaves light green, pinnatifid. *A. D. G.*
Acer Negundo var. aureo-marginatum	Variegated Box Elder	1	20			*T.* Leaves margined with yellow. *B. D. H.*
Acer pennsylvanicum	Striped-barked Maple or Moosewood	1	20-30			*T.* Bark greenish, striped with white. Leaves turn a beautiful yellow in autumn. Upright and dense. Excellent for undergrowth. *A. D G.*
Acer platanoides	Norway Maple	1	50-60			*T.* Spreading in growth, making a good shade tree. Particularly beautiful while in bloom. Flowers yellow green. Leaves turn pale yellow in autumn. Petioles of leaves with milky juice. *E. A. G.*
Acer platanoides var. Schwedleri	Schwedler's Maple	1	30-40			*T.* Leaves bright red while young, changing to dark green. A very attractive tree, with round, spreading head. *A. E. G.*
Acer platanoides var. Geneva	Geneva Maple	1	30-40			*T.* Foliage dark green in spring, turning deep red in midsummer. Irregular and spreading in growth. *A. E. G.*

Acer platanoides var. Reitenbachi		1	30-40			*T.* Practically identical with preceding. A very rare specimen.
Acer palmatum	Japanese Maple	1	10-15			*S.* Leaves deeply five to nine lobed; copper-green in color. Dense in growth. Good as a single specimen on the lawn or in masses with other tall shrubs. *B. C. G.*
Acer palmatum var. atropurpureum	Blood-colored leaved Japanese Maple	1	10-15			*S.* Foliage blood-red in early summer, changing to deep green. In autumn it assumes most striking tints of red and green. *B. C. G.*
Acer palmatum var. dissectum	Cut-leaved Japanese Maple	1	10			*S.* Branches drooping and generally twisted. Leaves finely cut, light green. *B. C. G.*
Acer palmatum var. ornatum or dissectum atropurpureum	Cut-leaved purple Japanese Maple	1	10			In habit similar to the above. Foliage blood-red when young, changing to a deep purple. *B. C. G.*
Acer pseudo-platanus	Sycamore Maple	1	30-40			*T.* Branches horizontal and spreading, forming a broad, round head. Bark smooth. Leaves large and rough. *C. D. G.*
Acer pseudo-platanus var. purpurascens	Purple Sycamore Maple	1	30-40			*T.* A purple-leaved form of the above. *C. D. G.*
Acer pseudo-platanus var. Worleei	Golden Sycamore Maple	1	20			*T.* Foliage brilliant yellow in summer. More narrow and pyramidal in growth than the type. Very showy. *C. D. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Acer pseudo-platanus var. albo-variegatum	Variegated Sycamore Maple	1	20			*T.* Foliage has white blotches and spots. Grows like Worle's maple. *C. D. G.*
Acer rubrum	Red, Scarlet or Swamp Maple	1	40-60			*T.* Spreading in growth, forming a dense, round head. Scarlet flowers and fruits. Very showy in autumn, with orange or scarlet leaves. *A. E. F.*
A. saccharinum	Rock or Sugar Maple	1	40-60			*T.* Upright and dense in growth. Leaves turn a beautiful yellow or scarlet in autumn. One of the best maples for street planting. *A. D. G.*
Acer saccharinum var. dasycarpum	White or Silver Maple	1	50			*T.* Spreading and rapid in growth. Foliage deeply cut, large and light green. Valued for avenue planting. *A. D. G.*
Acer saccharinum var. Wierii	Wier's Cut-leaved Silver Maple	1	50			*T.* Branches pendulous. Leaves deeply cleft with dissected lobes. A good tree for large lawns. *A. D. G.*
A. spicatum	Mountain Maple	1	15			*S.* Spreading in growth and valuable for undergrowth planting. Leaves rough. Flowers yellow-green on tips of red twigs. *A. F.*

A. tataricum	Tartarian Maple	1	10-15			*S.* A graceful shrub or small tree. Good for shelter belts. *A. F.*
A. tataricum var. Ginnala		1	8-10			A form of the above with handsome foliage turning bright red in autumn. *A. D. G.*
Achillea Tournefortii or A. ægyptiaca	Yellow Yarrow	4	15 in.	Yellow	July & Sept.	Foliage silvery and fern-like. Flat heads of flowers, about 3 inches across. *A. G. I.*
Achillea ptarmica The var. Pearl	Double-white Yarrow	4	15 in.	White	All summer	Good foliage and double flowers in small clusters. A profuse bloomer; invaluable for the border. *A. G. I.*
Achillea tomentosa		2 and 4	6-8 in.	Yellow	June & July	Good for the rockery or border. Resembles A. Tournefortii. *A. G. I.*
Achillea millefolium var. roseum		4	1	Pink	August	Flowers in large, flat clusters. Foliage finely divided. *A. G. I.*
Aconitum autumnale	Monkshood	4	3	Deep blue	Sept. to Nov.	Flowers bell-shaped, produced on long spikes. Root tuberous. An old garden favorite, and an excellent plant for the hardy border. *A. G. I.*
Aconitum Fischeri	Fischer's Monkshood	4	3	Pale blue	Sept.	*A. G. I.*
Aconitum napellus	Aconite	4	2½	Deep blue	June	*A. G. I.*
Aconitum uncinatum	Wild Monkshood	4	4	Purple	August	*A. G. I.*

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Aconitum variegatum	Variegated Monkshood	4	3	Pale blue	July	Foliage deep green, finely divided. Flowers in loose panicles, varying from blue to almost white. *A. G. I.*
Acorus calamus var. variegatus	Variegated Sweet Flag	4	3	Green-white	July	Leaves sword-like, striped with yellow. Can be grown in shallow water or on dry ground. Good for the rockery. Flowers insignificant. *A.*
Actæa spicata	Baneberry	4	1½	Blue-white	May & June	Leaves large, serrated. Flowers in loose, showy clusters. Berries purple-black, showy. Prefers partial shade and rich soil. Useful for the rockery or wild-garden. *A.*
Actinidia polygama	Actinidia	3	20	Green-white	June	Leaves large and dark green, shiny. A useful climbing plant for verandas and porches. *C. D. G.*
Actinidia arguta		3	20	Green-white	July	Leaves bright green, sometimes becoming handsomely variegated. *C. D. G.*
Adiantum pedatum	Maiden-hair Fern	4	1			Circular fronds on shining black stems. Prefers shade and deep leaf-mold or a compost of peat and sand. Pretty in masses under trees or in the rockery. *C. I.*

Adonis vernalis	Spring Adonis	4	1	Yellow	May	One of the earliest plants to flower in spring; good among other perennials, or planted under shrubs. Flowers resemble buttercups. Foliage finely cut. *A. G.*
Ægopodium podograria var. variegatum	Goutweed	4	8-10 in.	White	June	Dense foliage, margined with white. Common in old gardens and good for matting. Flowers insignificant. *A. G.*
Æsculus carnea or rubicunda	Pink Horse-chestnut	1	20-30	Pink	May	*T.* Flowers in large clusters and very showy. Foliage deep green. A very desirable lawn tree. *C. E.*
Æsculus glabra	Ohio Buckeye	1	15-20	Yellow	May	*T.* Open in growth and very showy while in bloom. Flowers in upright clusters, about 8 inches long. *A. E. G.*
Æsculus hippocastanum	Horse-chestnut	1	30-40	White	May	*T.* A difficult tree to transplant. Prefers a deep, rich soil. Flowers in showy clusters produced in abundance. An excellent shade tree. *C. E.*
Æsculus hippocastanum var. flore-pleno	Double white-flowering Horse-chestnut	1	30-40	White	May	*T.* A sterile form of the above. Very attractive while in bloom, and a good tree for large lawns. *C. E.*
Æsculus octrandra or Pavia flava	Yellow Buckeye	1	40	White-yellow	May	*T.* Forms a pretty round-topped tree, with pale green, downy leaves. Flowers upright in showy panicles. A good lawn tree. *A. E. G.*

Botanica Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Æsculus versicolor or Pavia Lyonii		1	20	Pale yellow	May	*T.* An attractive, compact, round-headed tree with showy, upright panicles of flowers. *A. E. G.*
Æsculus paviflora or Pavia alba	Dwarf Horse-chestnut	1	6-7	White	June	*S.* A very ornamental and rare, broad, spreading shrub, with large, deep green foliage and numerous showy flowers in large upright panicles. Good for the shrubbery border. One of the best of the late-flowering shrubs. *B. C. G. E.*
Æthionema grandiflorum	Lebanon Candytuft	4	1	Lilac	June	Foliage glaucous. Flowers in racemes. Good for planting as an edging for flower beds, or for the rockery. *E.*
Agapanthus umbellatus	African Lily	4	4	Blue	July	Leaves thick, grass-like, about 2 feet long. Flowers funnel-shaped, in large umbels. Good for the border, but requires heavy protection in winter. *B. C. I.*
Agrostemma	*See Lychnis*					
Ailanthus glandulosa	Tree of Heaven	1	40	Green-white	June	*T.* Leaves often 1½ feet long and tropical in appearance. Flowers in unattractive panicles. Exhales a disagreeable odor while in flower. Open in growth. One of the fastest growing trees known. *C. D. G.*

Aira	*See Molinia*					
Ajuga genevensis	Bugleweed	4	6 in.	Blue	May	Creeping. Good for planting in rockeries, or covering ground under shrubs. Flowers in whorls on erect stems. *A. G.*
Ajuga metallica var. crispa		4	6 in.	Pale blue	May	Foliage glossy green. Good for covering ground between Rhododendrons and other shrubs, or for the rockery. *A. E. G.*
Ajuga reptans	Bugle	4	3-4 in.	Violet-blue	May & June	Flowers on erect spikes. Leaves shiny. Creeping in habit. *A. G.*
Akebia quinata		1 & 3	15	Purple	May	A very graceful vine, excellent for verandas or porches. Flowers small and inconspicuous. Foliage small, deep green and dense. *B. H.*
Allium azureum	Flowering Onion	4	1	Blue	June & July	Bulbous and rather pretty when in bloom. Flowers in globular heads about 2 inches across. Leaves grass-like. Good in the wild-garden or in masses in the border. *A. G.*
Allium cernuum	Flowering Onion	4	1	Pink-purple	July & Aug.	Very similar to the preceding. *A. G.*
Almond	*See Prunus*					
Alnus incana	Alder	1	15			*S.* Valued only for its rapidity of growth. Good for shelter-planting and as undergrowth. *A. D. F.*

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Alnus incana var. pinnatifida	Cut-leaved Alder	1	15			*S.* A rather pretty, coarse shrub with finely cut foliage. Very open in growth. *A. D. F.*
Alstrœmeria aurantiaca	Peruvian Lily	4	2	Orange	July to Sept.	Tuberous rooted. Requires a deep, warm soil. The exceedingly attractive, showy flowers, resembling lilies, are produced in large umbels. *B. C. I.*
Althæa	*See Hibiscus syriacus*					
Althæa rosea	Hollyhock	4	5-7	Various		A well-known garden favorite, excellent in rows along garden-walls, in clumps back of borders or planted among dwarf shrubs. Flowers double or single, in shades of white, pink, deep red, almost black, orange and yellow. The Alleghany variety is semi-double and has flowers with fringed petals of the most lovely tints. If planted in the fall Hollyhocks should be heavily mulched with strawy manure, or leaves. They require rich soil, and as they are subject to rust Bordeaux mixture should be applied two or three times during the growing season. *C.*

Alyssum gemonense	Austrian Madwort	4	1	Lemon-yellow	April & May	Shrubby and dense in growth with numerous flowers in clusters. A good plant for the rockery or for edging flower beds. *A. G.*
Alyssum saxatile	Madwort or Goldentuft	4	1	Yellow	April	A good edging plant of easy culture. Foliage velvety gray. Flowers fragrant, in numerous small clusters. *A. G.*
Amaryllis	*See Lycoris*					
Amelanchier botryapium	Dwarf Shad-bush or Juneberry	1	5	White	May	*S.* An attractive and very free flowering shrub with numerous flowers in early spring in small racemes. Fruits purplish, ornamental and edible. Effective if planted in masses with other shrubs. *A. G.*
Amelanchier canadensis	Common Shad-bush	1	10-15	White	May	*S.* Much like the preceding, but taller in growth. *A. G.*
Amelanchier spicata	Spike-flowering Juneberry	1	2-3			*S.* Foliage large and oval. Flowers in large terminal racemes. *A. G.*
Amorpha canescens	Lead-plant	1	2-3	Blue	June	*S.* Dense in growth and free-flowering. Flowers in handsome spikes on slender pendulous branches. *A. G.*
Amorpha fruticosa	Bastard Indigo	1	8-10	Violet-purple	June	*S.* Very ornamental. Large spikes of pea-shaped flowers in narrow, drooping clusters. *A. D. G.*

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Ampelopsis aconitifolia var. dissecta	Cut-leaved Vitis	1 & 3	15-20			A variety with finely cut foliage. Very ornamental. *A. E. G.*
Ampelopsis heterophylla var. elegans	Variegated Vitis	1 & 3	15-20			A handsome climbing plant with deeply lobed leaves sometimes sprinkled with white and pink. Good for low trellis work. Berries light blue. *A. E. G.*
Ampelopsis quinquifolia	Woodbine or Virginia Creeper	1 & 3	20-30			Good for covering trellises, tree stumps, and similar objects. Leaves turn a rich crimson in autumn. *A. D. G.*
Ampelopsis quinquifolia var. Englemanni	Clinging Woodbine	1 & 3	20-30			A variety of the above with stronger tendril discs that cling to any surface. Good for wall covering. *A. D. G.*
Ampelopsis tricuspidata or Veitchi	Japanese or Boston Ivy	1 & 3	30-40			A very useful climber, clinging firmly and densely to any hard surface. Foliage large, three-lobed and glossy. *C. D. G.*
Amsonia Tabernæmontana	Amsonia	4	2-3	Light blue	June	Good for the hardy border or with shrubbery. Flowers in dense spikes. *A. G.*
Amsonia angustifolia		4	2-3	Light blue	June	Resembles the preceding, but with smaller hairy foliage. *A. G.*

Amygdalis	*See Prunus*					
Anaphalis margaritacea	Everlasting	4	2	White	Sept.	Pearly white double flowers in clusters. Foliage gray. A good border plant, and useful commercially for immortelles. *A. G. I.*
Anchusa italica	Alkanet	4	3-5	Blue	June to Sept.	A useful perennial, blooming constantly if not allowed to go to seed. Foliage rough; flowers in numerous small panicles. *A. G.*
Andromeda	*See also Pieris, Leucothoë, Zenobia, and Oxydendrum*					
Andromeda polifolia	Moorwort	2	1½-2	Rose-pink	May	*S.* Leaves narrow, glaucous, silvery white beneath. Flowers in clusters, urn-shaped. A very interesting native shrub. *A. E. G.*
Anemone japonica	Japanese Windflower	4	3	Pink	Sept. until frost	One of the most useful plants for the hardy border. Blooms freely until severe frosts. Flowers about 3 inches across, on erect stems. Quite hardy when well established. *B. C. F. I.*
Anemone japonica var. alba		4	3	White with yellow stamens	Sept. until frost	In habits like the preceding. *I.*
Anemone japonica var. Lady Ardilaun		4	3-4	White	Sept. until frost	Hardier than the type, leaves and flowers waxy.

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Anemone japonica var. Whirlwind		4	3-4	White	Sept. until frost	Semi-double; one of the hardiest.
Anemone pennsylvanica	Pennsylvania Windflower	4	1-1½	White	June & July	A native variety of value. Prefers a shady position. Its single flowers, which are about 1½ inches across, completely cover the plant. *A. G. I.*
Anemone Pulsatilla	European Pasque Flower	4	6 in.	Purple	April & May	Flowers large and beautiful. Good for the rock garden or open border. One of the earliest plants to bloom in spring. *B. C. H.*
Anemone sylvestris		4	1	White	April & May	Dense and light green foliage. Large single flowers in great quantity. Prefers partial shade. *A. G.*
Ansonia	*See Amsonia*					
Anthemis tinctoria	Chamomile	4	2-3	Lemon-yellow	June to Aug.	A profuse bloomer and very showy. A good border plant. Flowers about 1½ inches across, daisy-like. *A. G. I.*
Anthemis tinctoria var. Kelwayi	Kelway's Chamomile	4	2-3	Deep yellow	June to Aug.	A hybrid of the preceding. Equally valuable. Foliage dense, finely cut. *A. G. I.*
Anthericum	*See Paradisea*					
Apios tuberosa	Wild Bean	3 & 4	10-12	Chocolate-brown	July & Aug.	A vigorous tuberous-rooted climber with fragrant flowers in racemes about four inches long. Good for rockeries or low trellises.

Aquilegia canadensis	Wild Columbine	4	1-2	Scarlet and yellow	May to June	A good plant for the rockery or hardy border. Very free-flowering. *A. G.*
Aquilegia cærulea	Rocky Mountain Columbine	4	1	Violet and white	April to July	Foliage much divided. One of the best. Particularly good for rockery planting. *A. G.*
Aquilegia cærulea var. hybrida	Long-spurred Columbine	4	2	Various	May to July	A free-flowering species. Flowers in shades of white, blue and rose-purple. Excellent for the border or rock-garden. *A. G. I.*
Aquilegia chrysantha	Golden-spurred Columbine	4	3	Golden-yellow	May to Aug.	Fragrant and showy. Spurs very long and slender. One of the best. *A.G.I.*
Aquilegia formosa or californica	Californian Columbine	4	2-3	Various	May to July	Very distinct. Spurs long, orange-red. Petals yellow-brown. Foliage broad. *A. G. I.*
Aquilegia glandulosa	Siberian Columbine	4	1	Deep blue and white	April to June	One of the best and hardiest. Flowers very large. *A. G. I.*
Aquilegia Skinneri	Mexican Columbine	4	3	Crimson	May to June	Very showy and distinct. *A. G. I.*
Aquilegia vulgaris	European Columbine	4	3-4	Various	April to June	A fine strain in most beautiful colors of white, red, blue and purple. *A. G. I.*
Aquilegia vulgaris var. nivea	Munstead's White	4	3	White	June & July	Flowers very large and showy. *A. G. I.*
Aquilegia vulgaris var. flore-pleno	Double Columbine	4	3	Various	June & July	Double flowers in colors from light yellow to crimson. *A. G. I.*

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Arabis albida	White Rock-cress	4	6-8 in.	White	April & May	Flowers fragrant; one of the showiest border or rock plants. Masses of small star-shaped flowers completely cover the plant. *A. G.*
Arabis alpina		4	6 in.	White	April & May	Somewhat dwarfer with individual flowers smaller than the preceding. Very compact in growth. *A. G.*
Aralia	*See also Acanthopanax*					
Aralia spinosa	Hercules' Club	1	15-20	Green-white	July	*T.* Good for tropical effects. Leaves 3-4 feet long, pinnate. Branches thorny, upright. Flowers in loose clusters about 8-10 inches long. *C. G.*
Arctostaphylosuva-ursi	Bearberry	2 & 3				A trailing plant with rich glossy leaves. Excellent for covering rocky or dry places. Difficult to transplant, but of rapid growth when established. *A. G.*
Arenaria balearica	Sandwort	2 & 4	3 in.	White	July	A moss-like plant studded with pure white flowers. Good for rockwork. *A. G.*
Aristolochia macrophylla	Dutchman's Pipe	1 & 3	30			A strong growing vine with immense, heart-shaped leaves and peculiar pipe-shaped flowers. Good for shady places. *C. G.*

Armeria maritima	Sea-pink or Thrift	2 & 4	9 in.	Purple	All summer	All Armerias are valuable for edging. Foliage grass-like; flowers in globular heads. *A. G. I.*
Armeria maritima var. laucheana		2 & 4	12-18 in.	Crimson	All summer	A most persistent bloomer. *A. G. I.*
Armeria maritima var. alba	White Cushion-pink	2 & 4	9 in.	White	June	*A. G. I.*
Arnica montana	Mountain Tobacco	4	1	Orange	July & Aug.	Good for the rock garden. Showy flowers in loose clusters about 8 or 10 inches long with dense oval foliage. *A. G.*
Artemisia abrotanum	Southernwood	1	3-4	Bright yellow	July	*S.* Fragrant, deep green and finely-cut foliage. Flowers small and insignificant. *A. G.*
Artemisia absinthium	True Wormwood	4	2-3	Pale yellow	July	A common garden herb, often used as a vermifuge. *A. G.*
Artemisia dracunculus	Tarragon	4	2	Pale yellow	July	Very aromatic, used for flavoring. *A.G.*
Artemisia frigida	Small Southernwood	4	1	Bright yellow	July	Fragrant, with silky, fern-like foliage. Good for sandy or dry places, and for the rockery. *A. G.*
Artemisia pontica	Roman Wormwood	4	2-3	Yellow	July	A pretty low-growing perennial with quite showy heads of flowers. Often used in medicine as Absinthe. *A. G.*
Artemisia stellariana	Old Woman	4	2	Yellow	July	Good for edging or rockwork. Foliage white and finely cut. *A. G.*

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Aruncus astilboides or Spiræa aruncus var. astilboides	Goat's Beard	4	3	White	June & July	Flowers in plume-like panicles. Foliage large, rough and compound. A beautiful border plant. *A. G. I.*
Arundo donax	Reed-grass	4	10	Red	August	Reed-like perennial with broad, gracefully arching leaves. Very ornamental and good near water or among tall perennials. Flowers insignificant. *B. D. F.*
Arundo donax var. variegata	Variegated Giant Reed	4	10			A golden and green variegated form of the above. *B. D. F.*
Asclepias tuberosa	Butterfly Weed	4	2-3	Orange	July & Aug.	An excellent plant for the hardy border or for planting among low shrubs. Flowers in flat clusters, very brilliant and showy. *A. G. I.*
Asclepias incarnata var. pulchra		4	3-4	Purple-red	July	A showy plant while in bloom. Flowers in flat clusters about 4 inches across; leaves rough about 6 inches long. A good plant for the border. *A. G. I.*
Asperula odorata	Sweet Woodruff	4	1	White	May & June	A creeping plant with foliage particularly good for bouquet work. Leaves fragrant and often used to scent clothes. Good for rockwork. *A. G.*

Asphodeline lutea	Asphodel	4	2	Yellow	May & June	Foliage grass-like and fragrant. Flowers in showy spikes. Attractive in masses under trees or in the hardy border. *A. G. I.*
Asters	Michaelmas Daisies	4				A great many species are cultivated, but following are named a few of the best and most desirable species. Asters are of the easiest culture, and worthy of a place in every garden. Good in masses with shrubs or in the hardy border. Flowers daisy-like and produced in great quantities.
Aster alpinus	Mountain Aster	4	9 in.	Purple	July	Leaves in dense clusters; flowers single and solitary. Good for edging of borders or for the rock-garden. *A. G.*
Aster tataricus	Tartarian Aster	4	5	Purple	Sept. & Oct.	Very effective with shrubbery. Flowers and foliage very large, the latter lance-shaped, sometimes more than a foot long. *A. G. I.*
Aster amellus var. bessarabicus		4	2	Purple-blue	August	Very showy and free-flowering. *A.G.I.*
Aster Chapmanni		4	4-5	Clear blue	September	Individual flowers small, but borne in great profusion. *A. G. I.*
Aster ericoides		4	3	White with yellow center	October	One of the best. *A. G. I.*
Aster Novæ Angliæ var. rosea		4	4	Rose and crimson	Oct. & Nov.	A beautiful variety of our New England aster, with exceptionally large individual flowers. *A. G. I.*

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Aster Tataricus var. Lady Trevelyan		4	4	White with yellow centre	Oct. & Nov.	A very free-flowering variety. *A. G. I.*
Aster Tataricus var. Cottage Maid		4	3	Pink	Sept. & Oct.	Individual flowers large and about 1½ inches across. One of the most beautiful. *A. G. I.*
Aster Tataricus var. Townshendi		4	2½	Purple-blue	Sept. & Oct.	A distinct and valuable variety. *A. G. I.*
Astilbe chinensis or Spiræa chinensis	Chinese Goat's Beard	4	1-2	Light pink	July & Aug.	An excellent border plant with handsome feathery foliage and compact panicles of flowers about 6 inches long. *A. G. I.*
Astilbe japonica var. grandiflora		4	2	White	June & July	Much like the preceding, but with larger panicles of flowers. *A. G. I.*
Astilbe japonica or Spiræ astilboides		4	2	Cream-white	June & July	Glossy, dark foliage and very decorative. Flowers in showy, graceful plumes. A good plant for the border. *A. F. I.*
Astilbe japonica var. multiflora		4	2-3	Cream-white	June & July	A vigorous growing variety of the preceding with particularly large and showy plumes.
Astilbe japonica var. Queen Alexandra		4	2-3	Crimson	June & July	A variety with beautiful foliage and large crimson flowers. Excellent for the border, or in clumps near shrubs. *A. F. I.*

Aubrietia deltoidea	Rock Cress	4	2-4 in.	Purple	April	A showy spring-flowering plant. Good for carpeting and rock-work. Flowers in lax clusters. *A. G.*
Auricula	*See Primula*					
Azalea arborescens	Smooth Azalea	1	6-8	Rose	July	*S.* Very fragrant and showy. Flowers about 2 inches across and produced in great quantity. Good in masses with other shrubs or naturalized under trees. *A. E. F.*
Azalea calendulacea	Flame Azalea	1	6	Orange	June	*S.* A profuse bloomer; one of the best. *A. E. F.*
Azalea canadensis or Rhodora canadensis	Canadian Rhodora	1	3-4	Rose	May	*S.* Good for bog-planting or along streams. Foliage narrow, about 1½ inches long, glaucous. Clusters of flowers produced in profusion before the leaves appear. *A. E. F.*
Azalea nudiflora	Swamp-pink	1	6-8	Pink	May	*S.* Sweet-scented; one of the best and showiest. *A. E. F.*
Azalea Vaseyi		1	8-10	Pink	June	*S.* Flowers almost 2 inches across. A beautiful shrub. *A. E. F.*
Azalea viscosa	White Swamp Honeysuckle	1	6	White to pink	June & July	*S.* Flowers not particularly showy, but their intense fragrance makes the shrub worthy of cultivation. *A. F.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Azalea Gandavensis	**Ghent Azalea**	**1**	**4-5**	**Various**	**May & June**	*S.* The Ghent Azalea is a hybrid between American and Oriental varieties. It possesses very free-flowering qualities. Bushy and dense in growth. It can be obtained in all shades of white, orange, pink, carmine, lilac and red. It is excellent in groups with Rhododendrons or deciduous shrubs. *A. E. F.*
Azalea sinensi or A. mollis		**1**	**4-5**	**Various**	**May & June**	*S.* In habit and colors they are much like the Ghent Azalea, but with somewhat larger flowers. Leaves and branches hairy. *A. E. F.*
Azalea indica var. amœna	**Lovely Azalea**	**2**	**2-2½**	**Purple-red**	**May**	*S.* Foliage bronze-brown in winter. Flowers double, in great masses. Good for fringing groups of Rhododendrons, but requires heavy mulching in winter. *B. F.*
Baccharis halimifolia	**Groundsel Tree**	**1**	**6**		**September**	*S.* A good shrub for seashore planting. Its flowers are insignificant, but its fluffy white seed vessels render it most attractive. The dark green foliage adheres to the shrub until very late. *A. D. G.*
Baptisia australis	**Indigo**	**4**	**2**	**Dark blue**	**July**	Flowers in racemes. A showy plant, good for the mixed border. *A. G.*

Bellis perennis	English Daisy	4	3-4 in.	Pink	May	Good for edging flower beds, and often planted in the grass on lawns for early flower effect. Flowers double or semi-double; daisy-shaped. *B.G.I.*
Benzoin odoriferum	Spice-bush	1	8-10	Yellow	April	*S.* An attractive shrub valued for its handsome flowers, which come before the leaves in early spring. The aromatic foliage turns bright yellow in autumn. Fruit scarlet and conspicuous. *A. F.*
Berberis amurensis var. japonica	Siebold's Barberry	1	4-5	Yellow	June	*S.* A dense, round bush with large leaves and clusters of fruit. Very brilliant in autumn. *A. D. G.*
Berberis aquifolium or Mahonia aquifolia	Ashberry	2	4-5	Yellow	May	*S.* A pretty evergreen shrub with leaves resembling somewhat the English Holly. It is very effective in the autumn, when it turns a deep scarlet, and again in the spring with its bright yellow flowers. *B. C. E.*
Berberis canadensis	Common Barberry	1	4-6	Yellow	May	*S.* A well-known shrub and appreciated for its showy clusters of flowers in loose racemes, followed by bright-colored fruits in autumn and early winter. *A. G.*
Berberis vulgaris var. atropurpurea	Purple-leaved Barberry	1	4-6	Yellow	May	*S.* A variety of the English Barberry, excellent for use with other shrubs for color effect. The clustered fruits are very effective in winter. *A. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Berberis Thunbergii	Japanese Barberry	1	3-4	Yellow	June	*S.* Valuable as a hedge plant or massing for fall or winter effect. It is densely covered with bright-colored solitary fruits in winter and its foliage in autumn and early winter is superb. *A. G.*
Betonica	*See Stachys*					
Betula alba	European White Birch	1	40-50			*T.* A beautiful tree with white bark and spray-like branches. Very effective among evergreens. *A. D. G.*
Betula alba var. aurea	Golden-leaved Birch	1	20			*T.* A closely branched pyramidal tree with brilliant yellow foliage, good for color effect. *C. E. G.*
Betula alba var. fastigiata	Pyramidal Birch	1	40			*T.* A beautiful lawn tree. Fastigiate in growth. Bark white. Should be transplanted only in early spring. *A. D. G.*
Betula alba var. pendula laciniata	Cut-leaved Weeping Birch	1	40			*T.* A good tree for the lawn, with white bark, drooping branches and finely-cut foliage. Should be transplanted only in early spring. *C.D.G.*
Betula alba var. pendula Youngi	Young's Weeping Birch	1	30			*T.* When fully grown a most attractive tree. Its branches are irregular, like those of the Weeping Beech, and bend towards the ground. *A.E. G.*

Betula alba var. pendula atropurpurea	Purple-leaved Birch	1	30			*T.* Deep purple foliage in spring, fading to deep green in mid-summer. A rather open growing tree. *C. D. G.*
Betula lutea	Yellow Birch	1	40			*T.* Smooth, yellow bark. Dense in growth; good for shelter planting. *A. D. G.*
Betula Maximowiczii		1	40-50			*T.* Very rare. Regarded as the most beautiful of all birches. An excellent lawn tree. Color of bark is brownish yellow. Foliage is large and light green. Open, spreading in growth. Transplant only in spring. *C. D. G.*
Betula nigra or rubra	Red Birch	1	30			*T.* Growth of branches irregular. Foliage glossy. Bark cinnamon-colored, constantly peeling off. A tree worthy of cultivation. Transplant only in spring. *A. E. F.*
Betula papyrifera	Canoe or Paper Birch	1	50			*T.* Quite open in growth. Bark silvery-white, smooth. Very effective among Evergreens. *A. D. G.*
Betula pumila		1	8-10			*S.* Bushy in growth. Foliage small; bark very dark. Good for massing with shrubbery; also good on dry banks. *A. E. G.*
Biota	*See Thuya*					
Bignonia	*See Tecoma*					

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Bocconia cordata	Plume Poppy	4	8	White	August	Tropical in effect with broad glaucous foliage. Flowers on terminal spikes. Good among shrubs. *A. G.*
Boltonia asteroides	False Chamomile	4	5	White	Sept. & Oct.	An excellent fall-flowering perennial, with daisy-like flowers resembling fall asters. Good for the flower border or for planting among shrubs. *A. G. I.*
Boltonia latisquama		4	4-5	Lavender	Sept. & Oct.	A profuse bloomer and a valuable perennial like the preceding. *A. G. I.*
Boltonia latisquama var. nana	Dwarf Chamomile	4	2	Lavender	September	A dwarf variety of the former. Compact in growth and a very free bloomer. *A. G.*
Buddleia Lindleyana		1	5	Purple	June	*S.* Flowers in pendulous racemes. Leaves about 4 inches long, narrow and hairy. Showy while in bloom. *B. D. H.*
Buphthalmum salicifolium	Ox-eye	4	18 in.	Yellow	June	Showy and compact in growth. Numerous large solitary flowers, with long rays; leaves willow-like. A pretty plant for the hardy border. *A. G. I.*

Buxus sempervirens	Box	2	5-10			*S.* Used extensively for bordering flower-beds; single plants are also often trained in various shapes for lawn specimens. When thoroughly established, they are quite hardy, but they must be carefully protected from wind and sun in winter for at least two years after planting. *E. F.*
Cactus	*See Opuntia*					
Calimeris incisa		4	2	Purple	July & Aug.	Good for border planting and in front of stronger plants. Much resembling hardy Asters. *A. G. I.*
Callicarpa purpurea		1	3	Violet	August	*S.* A pretty shrub with dense, hairy foliage and showy flowers in small racemes. *B. C. E. H.*
Callirhoe involucrata	Poppy Mallow	4	1	Crimson	July to Aug.	A trailing, showy plant. Good for rockery or border planting. *A. D. G.*
Calluna vulgaris	Heather	2	1½	Pink	August	Flowers small, in long, dense racemes. Good for covering dry banks or hillsides. *B. C. E.*
Calluna vulgaris var. aurea	Golden Heather	2				A variety of the above with golden-brown foliage. *B. C. E.*
Calycanthus floridus	Carolina Allspice	1	5	Chocolate-brown	All summer	*S.* Flowers sweet-scented, with large, deep green, glossy foliage. Flowers about 3 inches across and shaped like pineapples. *A. D. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Calycanthus fertilis		1	5	Chocolate-brown	All summer	Similar to above, but with more shiny foliage and less fragrant flowers.
Campanula carpatica	Bluebell	4	9 in.	Blue	All summer	A useful edging or border plant, forming neat, compact tufts. A constant and profuse bloomer. *B. H.*
Campanula carpatica var. alba		4	9 in.	White	June & July	A variety of the preceding. Very free flowering. *B. H.*
Campanula glomerata var. Dahurica		4	2	Purple	July & Aug.	Flowers bell-shaped in large heads. One of the best. *B. H. I.*
Campanula latifolia		4	2	Deep blue	June & July	Foliage broad, deep green. Flowers large on stout spikes. *B. H. I.*
Campanula latifolia var. macrantha		4	3-4	Deep purple	June & July	Pyramidal in habit. Flowers large on showy spikes. *B. H. I.*
Campanula medium	Canterbury Bell	4	2-3	Various	June & July	Beautiful garden plants of easy culture. Flowers bell-shaped, in spreading racemes; colors, shades of pink, purple, and white, sometimes double. *B. H. I.*
Campanula persicifolia		4	2-3	Dark violet	June & July	Foliage resembling Peach leaves. Flowers cup-shaped about 2 inches in diameter and borne on tall stems. An excellent border plant. *B. H. I.*

Campanula rotundifolia	Blue Bells of Scotland	4	8 in.	Violet	June to Aug.	Very attractive. Good for borders and rock-gardens. Trailing in growth. Flowers small, bell-shaped. *A. H.*
Campanula pyramidalis	Chimney Campanula	4	4	Purple-blue	July	Pyramidal in growth. Flowers large, on long spikes. Effective in a border where heavy protection can be given in winter. An excellent plant for forcing. *B. H. I.*
Caragana arborescens	Pea Tree	1	12	Yellow	May & June	*S.* A showy dwarf tree or shrub with pretty pea-shaped flowers. *A. E. G.*
Caragana arborescens var. pendula		1	8	Yellow	May & June	*S.* A pendulous form of the above, usually grafted on stems 6 to 7 ft. high. Good for small lawns. *A.E.G.*
Carnation	*See Dianthus*					
Carpinus caroliniana	Hornbeam or Blue Beech	1	30			*T.* Bushy in growth. Leaves and wood much resembling the Beech. Useful for coarse hedges or screens, also for undergrowth. *A. E. G.*
Carpinus Betulus	European Hornbeam	1	15			*T.* More dwarf and finer in growth than the preceding. *A. E. G.*
Carya	*See Hicoria*					
Caryopteris mastacanthus	Blue Spiræa	4	2	Lavender	Sept. & Oct.	A showy fall-flowering plant, requiring heavy protection in winter. A pretty plant for the hardy border. Leaves rough and grayish. Flowers in numerous small clusters along the stem. *B. H. I.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Cassia marylandica	Wild Senna	4	4	Yellow	July & Sept.	Easily grown and showy. Good among shrubs. Foliage very ornamental. Flowers pea-shaped in large clusters. *A. F. I.*
Castanea americana or dentata	American Chestnut	1	50	White	July	*T.* A well-known native tree with spreading and somewhat pendulous branches, fragrant flowers, and bearing nuts of excellent flavor. Transplant only in early spring. Prefers a well-drained soil on a sunny slope. *A. D.*
Castanea pumila	Chinquapin	1	10	White	June	*S.* Bushy in growth. Fruit and foliage resembling the American chestnut. Easy of culture and quite ornamental. A single nut in each bur. *A. E. H.*
Castanea sativa var. Paragon	Paragon Chestnut	1	20	White	June	*T.* Foliage large and ornamental. Fruits much larger than the American chestnut and of good flavor. Young trees often bear two years after grafting. Undoubtedly the best chestnut grown. Transplant in spring. *B. C. H.*
Catalpa bignonioides	Southern Catalpa	1	25	White spotted with purple-brown	July	Similar to the preceding, but dwarfer and not so hardy.

Catalpa bignonioides var. purpurea	Purple-leaved Catalpa	1	30	Pink	July	*T.* Foliage dark purple and large. In growth much like the preceding. *B. C. D. H.*
Catalpa bignonioides var. nana or Bungeii	Tea's Catalpa	1	15	White spotted with brown	July	*T.* Round and compact in growth. Leaves smalle than those of the taller varieties. Generally grafted on stems 7 to 8 ft. high. Good for small lawns and for formal gardens. *B. E. C. H.*
Catalpa ovata		1	15	Yellow		A native of China and Japan. Hardier than the southern species.
Catalpa speciosa	Indian Bean-tree	1	40	White with few brown spots	July	*T.* Open, spreading and irregular in growth. Leaves often 12 inches long. Flowers fragrant, in large terminal clusters. A desirable ornamental tree. *A. D. G.*
Catananche cærulea	Blue Succory	4	2	Violet	June & Aug.	Easy of culture. Flowers in showy heads 2 inches across; good for the hardy border. *A. G. I.*
Ceanothus americanus	New Jersey Tea	1	3	White	June	*S.* Low and spreading in growth. Good on dry soils. Blooms freely. Foliage glossy green, flowers in terminal panicles. *A. E. G.*
Cedrus atlantica var. glauca		2	20			*T.* Foliage silvery and glaucous. In growth much like the American Larch. A rare and beautiful tree, succeeding best in a well-drained, loamy soil. *B. C. E.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Celastrus scandens	Bitter-sweet	1 & 3	20	Orange-yellow		Flowers in racemes. Showy crimson, capsuled fruit in autumn. A vigorous climber with dense, glossy foliage. Good for covering trellis-work, trees, rocks and walls. *A.D.G.*
Celtis occidentalis	Nettle-tree or Hackberry	1	40			*T.* In appearance much like the American Elm. Branches slender and somewhat drooping. Quite pretty in winte with its profusion of brownish black berries, which re-main or the tree until spring. *A.D G.*
Centaurea macroceph-ala	Knap-weed	4	2	Yellow	July to Sept.	Flowers large and daisy-like. Foliage rough, dull green. Good in the mixed border. *A. G. I.*
Centaurea montana	Mountain Bluet	4	1½	Purple	June to Sept.	Flowers large, resembling cornflowers. Foliage hairy. *A. G. I.*
Centranthus ruber	Red Valerian	4	1	Crimson	June to Aug.	Large spikes of beautiful flowers pro-duced very freely. A good border plant. *A. G. I.*
Centranthus ruber var. albus		4	1	White	June & July	A form of the preceding, with smaller flowers. *A. G.*
Cephalanthus occiden-talis	Button-bush	1	5	White	July	*S.* A pretty shrub with good foliage and attractive flowers in dense, glob-ular heads. *A. F.*

Cerastium arvense	Starry Grasswort	4	6 in.	White	April & May	Excellent for bedding. *A. G.*
Cerastium Boissierii	Mouse-ear	4	6 in.	White	June	Spreading in growth; good for covering dry banks. Foliage silvery. Flowers small, star-shaped. *A. G.*
Cerastium Biebersteinii		4	6 in.	White	June	Like C. tomentosum, but with larger leaves.
Cerastium tomentosum		4	4-6 in.	White	June	Foliage silvery and hairy. A pretty plant often used for edging and carpet-bedding. Flowers small but numerous, completely covering the plant. *A. G.*
Ceratostigma plumbaginoides or Plumbago larpentæ	Leadwort	4	8 in.	Deep blue	September	A good plant for the rockery. Dark green foliage in tufts, covered with numerous showy flowers. *B. C. H.*
Cercidiphyllum japonicum		1	25			*T.* A remarkably beautiful tree with heart-shaped leaves which are purple in spring. Bushy in growth, with slender, graceful branches. One of the best trees for the lawn. *B. C. D. H.*
Cercis canadensis	Judas Tree	1	15	Rose-pink	April	*T.* A low growing, spreading tree with good foliage. Conspicuous in early spring with its profusion of flowers, which appear before the leaves. *A. E. G.*
Cercis chinensis		1	15	Rose-pink	April	*S.* Flowers and foliage larger than those of the preceding. A very handsome small tree. *B. E. G.*

Botanica Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Chamæcyparis obtusa	Obtuse-leafed Cypress	2	10-15			*S.* Open in growth with irregular branches, with blue-green linear, obtuse leaves. A very hardy and useful shrub or small tree. *A. D. G.*
Chamæcyparis obtusa var. nana	Dwarf Obtuse-leafed Cypress	2	3			*S.* Foliage deep green. Very dense in growth, hardy. A most useful dwarf evergreen. *A. E. G.*
Chamæcyparis pisifera		2	10-15			Resembles Chamæcyparis obtusa, but with more slender and gracefully drooping branches. *A. D. G.*
Chamæcyparis pisifera var. aurea		2	10-15			A form of the preceding with brilliant golden foliage. Very hardy and useful. *A. D. G.*
Chamæcyparis pisifera var. filifera	Thread-branched Cypress	2	10-15			*S.* One of the hardiest of the Japanese Cypress with deep green, string-like, drooping foliage. A very graceful small tree or shrub. *A. G.*
Chamæcyparis pisifera var. filifera aurea	Golden Thread-branched Cypress	2	3			*S.* A dwarf bright golden form of the preceding. Very useful for color contrasts. *A. E. G.*
Chamæcyparis pisifera var. squarrosa	Silvery Japanese Cypress	2	10-15			*S.* Pyramidal and dense in growth, with blue-green, feathery foliage. A beautiful evergreen, and one good for grouping. *B. C. E. G.*

Chamæcyparis pisifera var. plumosa	Plume-like Cypress	2	15			Foliage dense, glaucous and delicate. One of the most common varieties of the Cypress, and excellent for grouping with other evergreens. *A. C. G.*
Chamæcyparis pisifera var. plumosa aurea	Golden Plume Cypress	2	15			A form of the preceding with bright golden foliage. Very useful for color contrasts. *A. C. G.*
Chamæcyparis sphæroides	White Cedar	2	15-20			*T.* Foliage light green and open. Pyramidal in growth; good for damp places. *A. D. F.*
Chamædaphne calyculata	Leather Leaf	2	3	White	April	*S.* An attractive low shrub with shining leaves in winter and a profusion of flowers in early spring. *B. E. G.*
Chelone Lyoni	Turtlehead	4	2	Pink-red	Aug. & Sept.	Showy flowers in profusion. Leaves glossy. A valuable perennial. *A.G. I.*
Chionanthus virginica	White Fringe	1	10	White	May	Fringe-like fragrant flowers in large, loose racemes. Ornamental purple fruits in bunches. A useful low tree or shrub. *A. G.*
Chionodoxa luciliæ	Glory of the Snow	4	6 in.	Blue	Mar. to Apr.	One of the earliest of the spring flowering bulbs. A profuse bloomer, good for the hardy border or rock-garden. *A. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Chrysanthemums, Hardy garden varieties		4	1-2	Various	Sept. & Nov.	Attractive late-flowering plants in all shades of white, red, orange and yellow. The flowers vary in size and shape from the small button variety about ¾ inch across to the large aster-shapes, sometimes more than 2 inches across. They bloom profusely and very late. If protected at night, the flowers may last until almost December 1. *B. H. I.*
Chrysanthemum coccineum or Pyrethrum roseum	Hardy Feverfew	4	1½	Various	June & July	One of the prettiest hardy perennials, with daisy-like flowers in colors of white, purple, pink and carmine. Foliage deep green and feathery. Excellent for the border. The flowers should be picked freely. *A. G. I.*
Chrysanthemum coccineum or Pyrethrum roseum var. florepleno	Double Pyrethrum	4	1½	Various	June & July	Varieties of the preceding with beautiful double flowers in various colors. A great many named varieties are offered by nurserymen, and the following are among the best: Mont Blanc, pure white; Ne Plus Ultra, bluish pink; Triumph de Mai, carmine; William Krumper, rose-lilac; Delicatissima, rose-lilac and orange.
Chrysanthemum lacustre	Large Marguerite	4	2	White, yellow center	Aug. & Sept.	Flowers often 2½ inches across. Foliage deep green. An excellent plant for the hardy border. *A. G. I.*

Chrysanthemum leucanthemum var. hybridum	Shasta Daisy	4	1-2	White	June to Sept.	A creation of Mr. Burbank's which is very free flowering. It succeeds best in deep and somewhat moist soil. Flowers daisy-like, often 3 or 4 inches across. Improved varieties are C. l. var. Alaska, with flowers often 4 or 5 inches across; var. California, yellow tinted, and var. Westralia, branching in habit, with large creamy white flowers. *A. F. I.*
Chrysanthemum maximum		4	2	White, yellow centre	Aug. & Sept.	Much like the C. lacustre, but dwarfer with narrower leaves. *A.G.I.*
Chrysanthemum Tchihatchewi	Turfing Daisy	4	1	White	May & June	Dark green, finely cut foliage in tufts. Flowers small, daisy-like with yellow centers. Good for covering dry spots. *A. G.*
Chrysanthemum uliginosum	Giant Daisy	4	4	White	September	One of the most showy fall-flowering perennials. Flowers daisy-like, single, with yellow centers; the flower clusters are about 2 inches across. A profuse bloomer, and one excellent for the hardy border. *A. F. I.*
Cimicifuga racemosa	Bugbane	4	4-5	White	July & Aug.	Flowers in beautiful racemes, often 2 ft. long. Its foliage and brilliantly colored fruits make the plant very ornamental. *A. F. I.*
Cladrastis tinctoria	Yellow-wood	1	30	White	June	*T.* Fragrant pea-shaped flowers in large drooping racemes. Good foliage. A handsome tree for the lawn. *A. D. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Clematis heracleæfolia var. Davidiana		4	4	Porcelain blue	Aug. & Sept.	Large, deep green leaves and hyacinth-shaped flowers in clusters. A good border plant, but needs some support. *B. H.*
Clematis hybrida var. New England	New England Clematis	3	10	Porcelain blue	Aug. & Sept.	A new introduction of great value. It is a hybrid between C. paniculata and C. Davidiana, having the foliage and bloom of the latter and the hardiness and vigorous climbing growth of the former. *A. C. D. G.*
Clematis lanuginosa var. Henryi		3	10	Cream-white	August	Blooms profusely. Undoubtedly the best of the large-flowering white varieties. Good for trellises. *A. C. D. H.*
Clematis lanuginosa var. Jackmani		3	10	Violet-purple	July & Sept.	The best purple Clematis, and a rapid climber. *A. C. D. H.*
Clematis lanuginosa var. Madame André		3	8	Crimson	July & Sept.	Flowers large. A most persistent bloomer. *A. C. D. H.*
Clematis lanuginosa var. Mme. Baron Veillard		3	10	Soft pink	July to Oct.	A rare but most beautiful variety. *A. C. D. H.*
Clematis montana		3	15	White	June	A vigorous climber, resembling much C. paniculata. Leaves large and glossy; flowers fragrant. *A. D. H.*

Clematis orientalis		3	8	Yellow	All summer	Flowers sweet-scented, about 1½ inches across. A quite free bloomer. Good for low trellises. *A. H.*
Clematis paniculata	Star Clematis	3	20	White	September	A beautiful climber with glossy, dark green leaves and sweet-scented, star-shaped flowers produced in profusion. Styles becoming plumose in fruit, gives it a white, feathery appearance. Good for covering porches and arbors. *A. C. D. G.*
Clematis recta		4	4	White	June & July	Flowers in clusters, fragrant. Very showy. Good for the hardy border. *A. G. I.*
Clematis virginiana	Virgin's Bower	3	12	White	August	Good foliage and flowers, but its fruits with their showy woolly tufts make the plant particularly attractive. Good for covering walls, tree trunks and heavy trellises. *A. D. G.*
Clethra alnifolia	Sweet Pepper-bush	1	4-5	White	July	*S.* Flowers in fragrant spikes. A native shrub valuable for massing in shady or low spots. *A. E. F.*
Clintonia borealis	Clintonia	4	4 in.	Yellow	June	Excellent for ground cover in cool, moist places; especially attractive for foliage and fruit effects.

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Colchicum autumnale	Autumn Crocus	4	4 in.	Various	September	Bulbous plants not unlike the crocus, with larger flowers, in colors of rosy purple, white and yellow. They are particularly good to plant among low growing plants, as Myrtle, dwarf Phlox, dwarf Sedum and the like, or in the rockery, but can also be planted in the open lawn. Should be planted in September and can be left undisturbed for several years. Some protection in winter is beneficial. *H.*
Colutea arborescens	Bladder Senna	1	8	Red-yellow	July	*S.* Pea-shaped flowers and Acacia-like foliage. An attractive shrub. *B. G.*
Convallaria majalis	Lily-of-the-Valley	4	6 in.	White	May	A well-known shade-loving plant. Prefers deep, rich soil and can be successfully grown under trees and shrubbery. Should be divided and replanted about every fifth year. *A. I.*
Coreopsis grandiflora	Tick-seed	4	2	Yellow	All summer	One of the most constant flowering of all perennials. Rich green foliage. Good for grouping with shrubs or in the border. *A. G I.*

Coreopsis lanceolata		4	2	Yellow	All summer	Flower stems more slender than those of the preceding. Very graceful and useful. Flowers daisy-like and last well after being cut. *A. G. I.*
Cornus alba	Siberian Red Osier	1	8	Cream	June	Similar to C. sanguina, but with brighter red twigs and light blue fruits.
Cornus alba var. Spæthi		1	5	White	June	*S.* In growth as the C. alba, but with bright yellow and green variegated leaves.
Cornus alternifolia	Alternate-leaved Dogwood	1	8	Yellow	June	*S.* A very distinct shrub or small tree, useful in the shrub border. The branches are arranged in irregular whorls, forming flat, horizontally spreading tiers. Foliage good. *A. D. F.*
Cornus circinata	Round-leaved Dogwood	1	7	White	June	*S.* Foliage oval. Flowers quite showy; clusters of pretty light blue berries are produced in the fall. *A. E. F.*
Cornus mascula	Cornelian Cherry	1	6	Yellow	April	*S.* A showy shrub with a profusion of flowers in early spring before the leaves appear. Berries scarlet. *A.E.F.*
Cornus mascula var. variegata	Variegated Cornelian Cherry	1	6	Yellow	April	*S.* A variety of the preceding with white variegated leaves. *A. E. F.*
Cornus candidissima	White-fruited Dogwood	1	6	White	July	*S.* Particularly attractive in autumn, when it is covered with clusters of pure white fruits on red stems. Dense in growth, with slender upright branches. *A. E. F.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Cornus sanguinea	Red Osier	1	6	White	June	*S.* A pretty shrub with blood-red bark in winter. Good for wet places. Branches upright and spreading. Fruits black. *A. D. F.*
Cornus sanguinea var. variegata	Variegated Osier	1	5	White	June	*S.* A form of the above with green and white foliage. *A. E. F.*
Cornus amomum or C. sericea	Silky Cornel	1	6-8	White	June	*S.* Bark grayish purple; fruits in clusters of pale blue berries. Good for planting in wet places. *A. D. F.*
Cornus Baileyi	Bailey's Cornel	1	6-8	White	June & July	*S.* Erect in growth, with dark red branches, and small cymes of flowers. *A. D. F.*
Cornus florida	White Flowering Dogwood	1	20	White	May	*T.* A beautiful tree with small greenish yellow flowers surrounded by showy bracts about 3 inches across. Berries brilliant scarlet. Foliage turns a rich crimson in autumn. Branches spreading. *B. C. H.*
Cornus florida var. rubra	Pink Flowering Dogwood	1	15	Rose	May	*T.* A variety of the preceding which freely produces flowers surrounded by large bracts of a deep rose color. A very ornamental low tree, good for lawn planting. *B. C. E. H.*
Cornus florida var. pendula	Weeping Dogwood	1	8	White	May	A variety with pendulous branches. *A. E. H.*

Cornus stolonifera	Red Osier or Dogwood	1	6	White	June	*S.* Prostrate stems with blood-red bark. Very effective in winter and particularly good near water. *A.D.F.*
Corylus maxima var. purpurea	Purple Hazel	1	6			*S.* Spreading in growth. Leaves remain deep purple all summer. Good among other shrubs. *B. C. E. H.*
Corylus avellana var. laciniata	Cut-leaved Hazel	1	5			*S.* A variety of the English Filbert with deeply-cut foliage. *B. E. H.*
Corylus avellana var. aurea	Golden-leaved Hazel	1	5			*S.* Brilliant yellow foliage. Good for color contrast. *B. C. H.*
Cotoneaster Simonsi		1	4	White	June	*S.* Dense and upright in habit of growth. Leaves dark green; showy bright red fruits borne along the stems. *B. E. H.*
Cotoneaster microphylla	Small-leaved Cotoneaster	2	3	White	July	*S.* A beautiful, low evergreen shrub with round glossy-green leaves. Dense in growth. Brilliant red fruit. Good for massing with low evergreens and good for rockeries. *C. E. G.*
Cratægus Lavallei	Lavalle's Thorn	1	15	White	May	*T.* Upright in growth. Bark shiny and reddish. Thorns about 1½ inches long. Leaves glossy and remain on tree until late. Showy scarlet fruit. *A. D. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Cratægus crus-galli	Cockspur Thorn	1	12	White	May	*S.* A native thorn of great value for hedges and screens. Dense in growth. Leaves dark and glossy; fruit brilliant scarlet. Transplants best in early spring. Many varieties. *A. G.*
Cratægus cordata	Washington Thorn	1	10	White	May	*S.* Good for hedges and screens; particularly attractive in fall, when its leaves assume a most brilliant color. Fruits scarlet. Transplants best in early spring. *A. G.*
Cratægus coccinea	Scarlet Thorn	1	15	White	May	*T.* Large leaves. Showy with large scarlet fruit. Good for screens. A very attractive small tree. *A. D. G.*
Cratægus oxyacantha	English Hawthorn or May	1	10	White	May	*S.* Bushy in growth, making good hedge plants. Completely covered in spring with pure white flowers and in autumn with bright red fruit. *A. D. G.*
Cratægus monogyna var. Paulii	Paul's Double Scarlet Thorn	1	15	Carmine	May	*T.* Flowers numerous. A showy and pretty tree while in bloom. Rather open habit of growth. *A. E. G.*
Cratægus monogyna var. alba pleno	Double White Thorn	1	15	White	May	*T.* Large, showy flowers. Open in growth. *A. E. G.*

Crocus vernus	Spring Crocus	4	5 in.	Various	April	Bulbous plants common in gardens. Easy of culture and useful among shrubs or perennials. Can be grown in the grass on lawns, and left undisturbed for several years. Do not mow lawns until foliage has ripened in spring. Plant in August or September. Colors in all shades of blue, white and yellow. *A. H.*
Cydonia japonica	Japan Quince	1	5-6	Scarlet	May	*S.* One of the most attractive spring flowering shrubs. Flowers large and produced in masses. Foliage dark glossy green. Good in hedges or for massing in the shrubbery border. Inclined to be attacked by the San José scale. *A. G.*
Cydonia japonica var. alba		1	5	White	May	*S.* A form of the preceding with showy white flowers. *A. G.*
Cydonia Maulei		1	4	Orange	May	*S.* A distinct and beautiful species of the Japan Quince, with large scarlet flowers about 1½ inches across. *A. G.*
Cydonia Maulei var. alpina	Dwarf Fire Bush	1	3	Scarlet	May	*S.* A valuable low shrub densely covered with showy flowers in spring. Fruits very sweet scented. *A. E. G.*
Cynanchum	*See Vincetoxicum*					
Cypress	*See Retinospora*					
Cypripedium acaule	Lady's Slipper	4	8 in.	Pink-purple to white	May	Good under trees, or in a shady rock-garden. Handsome solitary Orchid-like flowers with pink sac and brown sepals. *C. F.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Cypripedium spectabile	Showy Lady's Slipper	4	1½	White	June	Leaves oval in shape, variegated with gray. Flowers quite showy. Good in rock-gardens. *C. F.*
Cytisus scoparius	Scotch Broom	1	4	Yellow	May	*S.* Foliage fine dark green. Flower pear-shaped, produces in abundance. Good for seashore planting. In severe climates it kills to the ground, but reappears in the spring and regains its growth quickly. *D. H.*
Daffodil	*See Narcissus*					
Daphne cneorum	Garland Flower	2	8 in.	Pink	March	Good in front of shrubs or in the rock-garden. Trailing in habit. Fragrant flowers in close clusters. *E. A. H.*
Daphne mezereum	Mezereum	1	3	Red	March	*S.* Flowers fragrant in small clusters, coming before the leaves appear. Erect and open in growth. *B. C. E. G.*
Daphne mezereum var. alba		1	3	White	March	A variety of the preceding with white flowers and yellow fruit.
Decumaria barbara	Decumary	3	20	White	June	A climbing shrub, clinging by rootlets. Foliage shining; flowers in clusters. Good for covering rocks, banks, or tree trunks. *B. C. D. H.*

Delphineum cashmerianum	Larkspur	4	1½	Deep purple	June & July	Flowers in flat clusters. Foliage deeply cut. Particularly good for the rock-garden. *A. G. I.*
Delphineum elatum		4	4	Deep blue	June to Sept.	Foliage finely divided. Flowers large and marked with violet. Excellent for the border. If flowers are cut the plants will continue to bloom until very late. *A. G. I.*
Delphineum formosum		4	2-3	Blue	June & July	Large flowers on tall spikes. Foliage divided, dark. Good among shrubs or in the border. Will continue to bloom if cut freely. *A. G. I.*
Delphineum hybridum		4	3-4	Blue	June & July	Flowers in dense racemes. Often double and in all shades of blue. One of the best perennials. In habit much as the preceding. *A. G. I.*
Delphineum grandiflorum	Chinese Larkspur	4	2	Light blue	July & Aug.	Foliage light green, deeply divided. Individual flowers large and in compact racemes. Good for the hardy border. *A. G. I.*
Delphineum grandiflorum var. album	White Chinese Larkspur	4	2	White	July & Aug.	A variety of the preceding with pure white flowers.
Dennstædtia punctilobula or Dicksonia pilosiuscula	Gossamer or Hay Fern	4	2			A native fern of great beauty, with finely-cut foliage. It prefers a moist soil, but will thrive in dry, sunny spots. Good for massing in open ground or under trees. *A.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Desmodium	*See Lespedeza*					
Deutzia scabra var. crenata		1	6	Rose	June	*S.* A useful shrub with sweet-scented flowers in loose clusters. In exposed places it is inclined to winter-kill. *B. D. G.*
Deutzia scabra var. alba plena		1	6	White	June	*S.* A variety of the preceding with double white flowers. *B. D. G.*
Deutzia gracilis	Slender Deutzia	1	3	White	May & June	*S.* Round and dense in growth. Flowers fragrant, numerous; produced in small racemes on arching branches. A most useful low-growing shrub. *A. E. G.*
Deutzia Lemoinei	Lemoine's Deutzia	1	3-4	White	June	*S.* Flowers extra large, in great panicles. A beautiful shrub. *A. D. G.*
Dianthus barbatus	Sweet-William	4	1½	Various	June & July	Flowers in large, flat clusters, in all shades of pink, red and white. Common in old gardens. *A. G. I.*
Dianthus carthusianorum	Carthusian Pink	4	1	Blood-red	June & July	Many flowers borne in close clusters. Particularly good for the rock-garden. *A. D. I.*
Dianthus chinensis var. semperflorens		4	6-8 in.	White to pink	All summer	Fragrant flowers of good size produced freely all summer. Excellent for the border. *A. G. I.*

Dianthus deltoides	Grass-pink	4	6 in.	Red and crimson	May & June	Of creeping habit. Flowers solitary, produced in abundance and very fragrant. Good for edging. *A. G.*
Dianthus plumarius	Scotch Pink	4	6-8 in.	Pink	June	An old garden favorite. Good for edging or for the rock-garden. Flowers with fringed petals, fragrant. *A. G. I.*
Dianthus plumarius var. flore-pleno	Double Garden Pinks	4	6-8 in.	Various	May & June	Dwarf pinks of compact habit, with numerous fragrant double showy flowers in colors of deep red, pink and pure white. Excellent border plants. Numerous varieties are offered for sale, of which the following are the best and most free flowering: Her Majesty, pure white; White Reserve, pure white, all summer; Abbotsford, deep pink; Juliette, deep pink and white, variegated; Souvenir de Sale, soft pink; and Napoleon III, crimson, all summer.
Dicentra eximia	Dielytra	4	1½	Purple-red	All summer	Fern-like foliage with short racemes of very attractive flowers. Good in border or rock-garden. *A. G.*
Dicentra spectabilis	Bleeding-heart	4	2	Rose	May & July	Heart-shaped flowers in loose clusters on drooping stems. Foliage deeply cut. A favorite in old-fashioned gardens. *A. G.*
Dictamnus albus	Gas Plant	4	2½	White	June & July	Bushy and upright growing. Foliage glossy; flowers fragrant, in racemes. Good with shrubbery or in the border. *A. G. I.*

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Dictamnus albus var. rubra		4	2½	Pink	June & July	Flowers somewhat smaller than those of the preceding. *A. G. I.*
Diervilla florida	Weigelia	1	6	Pink	June	*S.* An old garden favorite with good foliage, and flowers in abundance. *B. D. H.*
Diervilla florida var. candida	White Weigelia	1	8	White	June & July	*S.* Bushy in growth. Flowers large and quite showy. In exposed places it is apt to partly winter-kill. *B. D. H.*
Diervilla florida var. variegata	Variegated Weigelia	1	5-6	Rose	June	*S.* Dense in growth. Leaves variegated with white and yellow. A very pretty shrub. *B. E. H.*
Diervilla floribunda		1	5-6	Crimson	June	*S.* Flowers abundant, fragrant. *B. H.*
Diervilla hybrida var. Eva Rathke		1	5	Crimson	June & July	*S.* The hardiest of the Diervillas; free flowering. Flowers very handsome and fragrant. *B. E. H.*
Digitalis purpurea	Foxglove	4	2	Various	June & July	Flowers tubular, produced in long flower-clusters, in colors varying from deep purple-pink to white. Good in the border among shrubs. If cut freely it will continue to bloom until late in summer. *A. H. I.*

Digitalis purpurea var. gloxiniæflora	Foxglove	4	2-3	Various	June & July	A robust and large-flowered variety of the preceding. *A. H. I.*
Digitalis ambigua	Foxglove	4	2½	Yellow	June & July	*A. H. I.*
Dirca palustris	Leatherwood	1	4-5	Yellow	March	*S.* Foliage light green; flowers quite showy. Very compact in growth, and good as a single specimen for the lawn, or in masses with other shrubs. *A. E. F.*
Dodecatheon meadia	Shooting-star	4	1	Purple	April	Good in the rock-garden and under shrubs or trees. Umbels of drooping flowers on erect stems. A graceful plant of easy culture. *A. F.*
Dolichos	*See Pueraria*					
Doronicum plantagineum	Leopard's Bane	4	2	Orange	May & June	Flowers showy; plant bushy in growth. Blooms are often 4 inches in diameter. A valuable spring-flowering perennial. Good in the flower border or under trees. *A. F. I.*
Doronicum Clusii		4	1½	Golden-yellow	May & June	Vigorous in growth. Flowers large and showy. Should be grown extensively. A good plant for the border or rockery. *A. F. I.*
Doronicum caucasicum		4	1½	Yellow	May & June	Flowers about 2 inches in diameter, and last well after being cut. *A. E. I.*
Dracocephalum speciosum	False Dragonhead	4	1½	Pink	June	Showy flowers on long spikes. Good for massing in front of taller perennials. *A. G. I.*

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Echinacea purpurea	Cone-flower	4	2½	Red-purple	Aug. & Oct.	A bushy showy plant with flowers sometimes 4 inches across. Center of flowers dark, drooping petals. A very free-flowering perennial. *A. G. I.*
Echinops Ritro	Globe Thistle	4	3	Light blue	July & Aug.	Coarse plants of vigorous growth. Good among shrubs or in wild-garden. *A. G.*
Elæagnus argentea	Oleaster	1	8	Yellow	May & June	*S.* Flowers fragrant; leaves silvery. Fruit bright red, showy. A pretty shrub. *A. D. G.*
Elæagnus longipes	Japanese Oleaster	1	6	Light yellow	April & May	*S.* Fruit about ¾ of an inch long, bright red; edible. Silvery foliage and fragrant flowers. A shrub of much value. *A. D. G.*
Elymus glaucus	Blue Lyme-grass	4	3½			A hardy ornamental grass with glaucous leaves. Very effective in clumps with shrubs; good for planting in sandy spots. *A. H.*
Empetrum nigrum	Crowberry	2	6 in.	Pink	June	Trailing, somewhat resembling the heath. Excellent for covering ground under Rhododendrons or Azaleas, also good for the rock-garden. *A. E. F.*

Epigæa repens	Mayflower or Trailing Arbutus	2	4 in.	Pink	April & May	A well-known native spring-flowering plant, with highly fragrant flowers in clusters. Difficult to establish unless pot-grown plants are procured. Good for the rockery or wild-garden, also when naturalized under trees. *A. E. F.*
Epimedium macranthum	Barren-wort	4	1	White	April & May	A compact, dwarf plant with pretty flowers in panicles. Prefers a partially shady position. *A. F. I.*
Epimedium alpinum var. rubrum		4	9 in.	Red	May & June	Good for the rock-garden. New leaves tinted with purple. Flowers showy, abundant. *A. G.*
Epimedium musschianum		4	1	Cream-white	May	Foliage leathery, turning blue in autumn. Flowers good, showy. Excellent under shrubs or in the rock-garden. *A. G.*
Eremurus robustus		4	6	Pink	June & July	Dense spikes of large star-shaped flowers. Leaves resemble those of the Poker-plant. Only well established plants will produce flowers. Requires heavy protection in winter. Good for grouping in background of hardy border. *B. C. H.*
Erica	*See Calluna*					
Erigeron aurantiacus	Flea-bane	4	1	Orange	July & Aug.	Somewhat resembling hardy asters in growth. Very free-flowering. *A. G. I.*

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Erigeron speciosus		4	1½	Blue with yellow center	August	This, like the preceding, is an attractive plant for the border or wild-garden. *A. G. I.*
Eryngium amethystinum	Sea Holly	4	2½	Amethyst-blue	July & Aug.	An interesting and unusual plant with glaucous foliage, thistle-shaped flower-heads and stems of deep steel-blue. Good for sub-tropical effects. *A. G. I.*
Eryngium aquaticum		4	3½	White	September	Large thistle-like flowers and long, bristly leaves. Good in the hardy border. *C. G.*
Erythronium Americanum	Dog's-tooth Violet	4	6 in.	Yellow	April & May	A pretty, native bulbous plant, flowering profusely in the spring. Flowers lily-like, about 1 inch across. Particularly good for the rock-garden or to plant under trees. Leaves long, mottled. *A. F.*
Erythronium grandiflorum		4	6 in.	Yellow	April & May	Much like the preceding, but with unmottled leaves. Good under shrubs or trees. *A. F.*
Erythronium dens-canis		4	4-6 in.	Lilac	April & May	Red-brown leaves; flowers resembling violets. Good in the rock-garden. *A. G.*
Eulalia	*See Miscanthus*					

Euonymus Americanus	Strawberry-bush	1	8	Yellow-red	June	*S.* A pretty, upright growing shrub with good foliage; particularly handsome in fall with its scarlet berries. Excellent for the shrubbery border. *A. D. G.*
Euonymus alatus	Winged Burning-bush	1	6	Yellow-red	June	*S.* Spreading in growth with peculiar corky bark along the branches. Leaves small, oval. Berries scarlet, ornamental. The foliage turns a most beautiful crimson in autumn. *A. E. G.*
Euonymus europæus	Spindle Tree	1	12	Yellow	May	*S.* Resembles the E. americanus, but has more attractive foliage and fruits. *A. D. G.*
Euonymus latifolius		1	8	Yellow		*S.* Leaves deep green, 3 to 4 inches long. Fruit very large, pink-capsuled. *A. E. G.*
Euonymus nanus		1	2	Yellow	July	*S.* Prostrate in growth, covered with showy scarlet fruit in autumn. Good in front of taller shrubs or for rockeries. *A. E. G.*
Euonymus radicans		2 & 3	10-15			A spreading vine or low clinging shrub which can be used for covering tree trunks, rocks or brick walls. Also good for planting under Rhododendrons or other shrubs to cover ground. *A. E. G.*
Euonymus radicans var. argenteo marginatus or reticulatus	Variegated Euonymus	2 & 3	10-15			A variety of the preceding with foliage prettily variegated with white, yellow and pink. *A. E. G.*

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Eupatorium ageratoides	Thoroughwort or White Snakeroot	4	4	White	Aug. & Sept.	Numerous small flower-heads in clusters. A good plant for the border. *A. G. I.*
Eupatorium purpureum	Joe-Pye-Weed	4	4	Purple	July to Sept.	Immense flat clusters of flowers with good, dark foliage. Particularly pleasing in the bog-garden. *A. F. I.*
Eupatorium purpureum var. amœnum		4	2	Flesh color		Excellent for bold effects in border or in shrubs. *A. F.*
Euphorbia corollata	Flowering Spurge	4	2	White	July & Aug.	A good border plant which is very useful for cutting. Branching in habit. Its tiny leaves resemble dense sprays of flowers. *A. H.*
Euphorbia myrsinites		4	1	Yellow	April to May	*S.* Prostrate, good for the rock-garden. *A. G.*
Exochorda grandiflora	Pearl-bush	1	8	White	May	*S.* A very handsome shrub while in bloom. It is open in growth and its uneven growth is not attractive. Flowers 1½ inches across in racemes of 4 and 5. It should never be planted alone, but back of, or massed with, other shrubs. *A. E. G.*

Fagus ferruginea	American Beech	1	50-60			*T.* A native tree with spreading branches, forming a dense, round head. A beautiful tree and good for large lawns. Should be transplanted only in early spring. A shade enduring species which makes it valuable for planting under other trees. *A. E. G.*
Fagus sylvatica	European Beech	1	40-50			*T.* Of more compact habit than the preceding, and with smaller leaves. The foliage is particularly beautiful in its spring coloring. *A. E. G.*
Fagus sylvatica var. heterophylla	Cut-leaved Beech	1	20			*T.* Finely-divided foliage. An attractive small tree which is compact in habit. Transplant only in early spring. *C. E. G.*
Fagus sylvatica var. pendula	Weeping Beech	1	40-50			*T.* Of a peculiarly irregular growth which is very attracrtive. A fine tree for large lawns. Transplant only in early spring. *C. E. G.*
Fagus sylvatica var. purpurea	Copper Beech	1	40-50			*T.* Foliage bronze-purple in spring, but fades towards mid-summer. Compact in growth and a symmetrical tree for large lawns. Transplant only in early spring. *C. E. G.*
Fagus sylvatica var. purpurea pendula	Purple-leaved Weeping Beech	1	40			*T.* A good tree for picturesque and contrast effects. In habit of growth similar to the preceding.

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Fagus sylvatica var. purpurea Riversi	Rivers' Purple Beech	1	50-60			*T.* A beautiful tree with large, dark red leaves which hold their color well throughout the season. Branches spreading. Transplant only in early spring. *C. E. G.*
Festuca glauca	Blue Fescue Grass	2 & 4	6 in.			A handsome tufted grass with silvery-blue leaves. It is evergreen, very hardy, and excellent for bordering flower beds. It should be cut back to within 2 or 3 inches of the ground each spring. *G.*
Forsythia intermedia	Upright Golden Bell	1	8	Yellow	April	*S.* Closely resembling Forsythia suspensa. *A. D. G.*
Forsythia suspensa var. Fortunei	Fortune's Golden Bell	1	8	Yellow	April	*S.* Bell-shaped flowers in racemes in early spring. Spreading in growth. Good, deep green foliage. *A. D. G.*
Forsythia suspensa	Drooping Golden Bell	1	8	Yellow	April	*S.* Branches gracefully arching. Foliage good. Very free flowering. A most useful shrub. *A. D. G.*
Forsythia viridissima	Upright Golden Bell	1	8	Yellow	April	*S.* Resembles F. suspensa var. Fortunei, but branches are more erect and bark darker in color. *A. D. G.*

Fraxinus Americana	American Ash	1	50-60			*T.* A good tree for large lawns or for street-planting. It is spreading in growth and of rather open foliage. It is one of the few trees which are not attacked by gypsy or brown-tailed moths. *A. D. G.*
Fraxinus nigra	Black Ash	1	50-60			*T.* Closely resembles the preceding, but bark is darker in color. Especially good for low places. *A. D. G.*
Fraxinus pennsylvanica var. ancubæfolia	Ancuba-leaved Ash	1	30-40			*T.* A variety with prettily variegated yellow and green leaves. *A. D. G.*
Fraxinus excelsior	European Ash	1	40-50			*T.* Resembles the American Ash. Buds blunt and black. *A. D. G.*
Fraxinus excelsior var. pendula	Weeping Ash	1	15			*T.* Spreading and drooping branches with flattened twigs. An attractive tree for lawn planting. Generally grafted on stems 7 to 8 ft. high. *A. G.*
Fraxinus ornus	Flowering Ash	1	15	White	June	*T.* Dwarf, compact in growth. Conspicuous fringe-like flowers in profusion. *B. C. E. G.*
Fritillaria Imperialis	Crown Imperial	4	2-3	Various	April to May	Bulbous. Good among shrubs or in the border. Flowers bell-shaped, in the various shades of yellow. *A. H.*
Fuchsia californica	Hardy Fuchsia	4	1½	Various	Aug. & Sept.	A pretty low-growing plant with numerous bell-shaped blossoms. Good in the rock-garden. *B. C. H.*
Funkia Fortunei	Fortune's Plantain Lily	4	1½	Lilac	July	Heart-shaped, glaucous, green foliage and spikes of bell-shaped flowers. Good in borders or in front of shrubbery. *A. G.*

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Funkia lancifolia	Lance-leaved Plantain Lily	4	1½	Lilac	July & Sept.	Resembles F. Fortunei closely. Flowers in loose racemes; leaves quite narrow. *A. G.*
Funkia lancifolia var. undulata	Variegated Plantain Lily	4	1	Lilac	July	Handsome foliage margined with white. A good edging plant, but should not be used too freely. *A. G.*
Funkia ovata	Ovate-leaved Plantain Lily	4	1½	Lavender	June & July	Deep green foliage in large tufts. Bell-shaped flowers in racemes. A good border plant. *A. G.*
Funkia Sieboldiana	Siebold's Plantain Lily	4	2	Lilac	June & July	Luxuriant foliage. Flowers small and drooping. Good in the border or massed with shrubs. *A. G.*
Funkia subcordata var. grandiflora	White Day Lily or Plantain Lily	4	2	White	Aug. & Sept.	Large spikes of fragrant tubular flowers. Leaves very large. Good in margins of shrubbery. The best of the Funkias. *A. G. I.*
Gaillardia aristata	Blanket Flower	4	1½-2	Yellow to red	All summer	Daisy-like flowers in various shades of yellow with dark brown centers. Excellent for the border and one of the best perennials for cutting. *A. G. I.*
Gaillardia aristata var. grandiflora		4	2-2½	Yellow	All summer	More robust, with larger flowers, than those of the preceding. *A. G. I.*

Galanthus nivalis	Snowdrop	4	4-6 in.	White with green centre	Mar. or Apr.	Bulbous. One of the earliest of the spring-flowering bulbs. Good among shrubs, in the border, under trees or in the grass on the lawn. Drooping blossoms sometimes double. *A. G.*
Galega officinalis	Goat's Rue	4	2	Lilac	June to Sept.	Pea-shaped flowers in racemes. Bushy in growth. Foliage dense and finely cut. Good in the wild-garden or border. *A. G. I.*
Galega officinalis var. alba		4	2	White	June & July	A white variety of the preceding.
Galega officinalis var. rubra		4	2	Rose	June & July	Showy rose-colored flowers.
Galium boreale	Bed-straw	4	1½	White	June & July	Pretty foliage with small flowers in clusters. Particularly good for the rock-garden. *A. G. I.*
Galium mollugo	Bed-straw	4	2-3	White	July	Good for the hardy border. Flowers in loose sprays. *A. G. I.*
Galtonia candicans	Summer Hyacinth	4	3	White	July & Aug.	Fragrant bell-shaped flowers in spikes. Large hyacinth-like foliage. Bulbous. Effective in the border or among Rhododendrons. *A. C. I.*
Genista tinctori	Dyer's Broom	1	3	Yellow	June	*S.* Good for sandy or dry spots. Erect in growth. Pea-shaped flowers in clusters. *A. E. G.*
Gentiana Andrewsii	Closed Gentian	4	2	Deep blue	Aug. & Sept.	A pretty herb, with peculiar closed flowers in the axils of the leaves and in terminal clusters. Good for the wild or rock garden. *A. F.*

Botanica Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Geranium Endressi	Crane's Bill	4	1	Rose	May & June	Good in the rock-garden. Pretty foliage; flowers beautifully fringed. *A. G.*
Geranium platypetalum		4	1½	Violet	June to Sept.	Attractive divided foliage. Flowers in clusters. Good in the rock-garden. *A. G.*
Geranium maculatum	Wild Geranium	4	1½	Lavender	May & July	Good in the wild-garden. *A. F.*
Geranium sanguineum		4	1½	Crimson	May & July	The best of the hardy Geraniums. Foliage good; flowers large, on branching stems. Good in the border or rock-garden. *A. G.*
Geum chilœnse or atro-sanguineum	Avens	4	1	Deep red	June	Particularly good in the rock-garden. *A. G.*
Geum triflorum	Apache Plume	4	1	Purple	May & June	A hairy-leaved, low plant with conspicuous red seed pods after the flowers. Good in the rock-gardens. *A. G.*
Ginkgo biloba	Maidenhair Tree	1	50			*T.* A slender, pyramidal tree with fan-shaped leaves. Very picturesque and good as a specimen tree. Generally free from attacks of insects. *B. C. E. H.*

Gleditschia triacanthos	Honey Locust	1	40	Pink	May	*T.* Small flowers in racemes, followed by pods often 1½ feet long. Good for park or street planting and makes impenetrable hedges if planted thickly and pruned severely. *A. D. G.*
Gleditschia triacanthos var. Bujoti	Weeping Honey Locust	1	15	Pink	May	*T.* Irregular in growth with pendulous branches. An attractive small tree. *A. E. G.*
Goodyera pubescens	Rattlesnake Plaintain	4	4 in.	Green-white	July & Aug.	Foliage prettily marked with white. Dense spikes of flowers. Good in the rock-garden. *A. F.*
Gymnocladus canadensis	Kentucky Coffee Tree	1	40	Green-White	June	*T.* Foliage a peculiar blue-green. Open in growth. It is a graceful tree, free from diseases or insects. The flowers are in large panicles, and followed by large pods containing seeds which are sometimes used as a substitute for coffee. *A. E. F.*
Gypsophila paniculata	Baby's Breath	4	2	Light pink	July & Aug.	A most graceful plant, excellent for the border. Numerous small flowers in feathery panicles. Very useful for cutting. *A. G. I.*
Gypsophila repens	Creeping Chalk Plant	4	6 in.	Light	June & July	Trailing, and good for the rock-garden. Flowers small, produced in great profusion. *A. G.*
Gypsophila Stevenii		4	1½	White	June & July	Very showy while in bloom, and a good border plant. Individual flowers larger, but panicles smaller than those of G. paniculata. *A. G.*

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Habenaria ciliaris	Yellow Fringed Orchis	4	1½	Orange	June	A native orchid, very attractive in bloom. Good for the rockery or bog-garden. *A. F.*
Halesia tetraptera	Silverbell	1	10	White	May	*S.* Open in growth, and best if planted among or back of other shrubs. Flowers resemble snow-drops and completely cover the shrub. *A. C. H.*
Hamamelis japonica	Japan Witch Hazel	1	8	Yellow	November	*S.* An interesting shrub, with darker and larger leaves than the American type. The flowers are showy and appear in great quantities very late in the autumn. *B. C. D. F.*
Hamamelis virginiana	Common Witch Hazel	1	8	Yellow	November	*S.* Good among other shrubs and, like the preceding, valued because of its late blooming quality. *A. D. G.*
Hedera Helix	English Ivy	2 & 3	10-30			A pretty vine and good for covering walls, rocks or tree-trunks to which it clings. It is not reliably hardy for general use, and can be grown only in sheltered positions. *C. E. F.*
Hedysarum multijugum		4	2	Purple-yellow	All summer	Good for the rock-garden. Flowers in showy racemes, sometimes 8 inches long. *A. H.*

Helenium autumnale	Sneezewort	4	5	Yellow	Aug. & Sept.	Very showy, daisy-like flowers in great profusion. Good among shrubs or back of other perennials. One of the best fall-flowering hardy plants. *A. G. I.*
Helenium autumnale var. grandiflorum		4	5-6	Yellow	Aug. & Sept.	Somewhat taller in growth and larger flowers than the preceding. *A. G. I.*
Helenium autumnale var. striatum		4	4-5	Orange	August	An excellent border plant. Flowers in great quantity. Petals yellow striped with crimson. *A. G. I.*
Helenium autumnale var. pumilum	Dwarf Sneezewort	4	2	Yellow	Aug. & Sept.	Numerous flowers, sometimes 2 inches across. Very showy and good. *A. G. I.*
Helenium Hoopesii		4	3	Yellow	May & June	A good border plant, with large showy flowers. *A. G. I.*
Helianthemum chamæcistus var. vulgare	Sun-rose	2	1	Yellow	June & July	Small, deep green foliage, silvery underneath. Good for covering ground under Rhododendrons or other shrubs, also for the rockery. Single and showy bright yellow flowers. *A. G.*
Helianthemum chamæcistus var. vulgare flore-pleno	Double Sun-rose	2	1	Yellow	June & July	A variety of the preceding with pretty double flowers. *A. G.*
Helianthemum chamæcistus var. hyssopifolium		2	1	Orange	June & July	In habits similar to var. vulgare, but with copper-colored flowers.

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Helianthus decapetalus	Sun-flower	4	4	Yellow	Aug. & Sept.	Showy flowers with light green, rough foliage on branching stems. Particularly good among shrubs. *A. G. I.*
Helianthus decapetalus var. multiflorus florepleno	Double Sun-flower	4	4	Deep yellow	July & Aug.	Erect in habit. Large, double, Dahlia-like flowers. *C. H. I.*
Helianthus decapetalus var. maximus		4	7	Yellow	July & Aug.	Good among shrubs. Flowers very large and almost equal in size to the annual variety. *A. G. I.*
Helianthus lætiflorus		4	5	Yellow	July & Aug.	Large rough foliage; flowers often 4 inches across. Good among shrubs. *A. G. I.*
Helianthus Maximiliani		4	7	Yellow	Sept. & Nov.	A stately plant with narrow foliage and very large single flowers. Good among shrubs. *A. G. I.*
Helianthus mollis	Hairy-leaved Sun-flower	4	5	Yellow	July & Aug.	Leaves gray and rough. Flowers large and showy. Good among shrubs or back of other perennials. *A. G. I.*
Helianthus orgyalis		4	8	Yellow	Sept. & Oct.	Foliage drooping and grass-like. Small flowers in long spikes. Very decorative and good among shrubs. *C. H. I.*

Helianthus tuberosus	Jerusalem Artichoke	4	6	Yellow	September	Flowers about 3 inches across and very showy. Tuberous and edible. Good in the wild-garden or among shrubs. *A. H.*
Heliopsis lævis	Ox-eye	4	4	Yellow	July & Sept.	Flowers numerous and about 2 inches across, resembling sun-flowers. Branching in habit. Good for the hardy border or dry spots. *A. G. I.*
Heliopsis lævis var. Pitcheriana		4	2½	Yellow	July & Sept.	Very free flowering and bushy. Flowers deeper in color than preceding. *A. G. I.*
Helleborus niger	Christmas-rose	2 & 4	1	Purple-white	Mar. & Apr.	Large palmately-divided leaves and cup-shaped flowers about 2½ inches across. Good among shrubs or in rockeries. Well-established plants will often bloom on warm days in December and January. Can be easily forced under glass and made to bloom at any time desired during the winter. *A. G. I.*
Hemerocallis aurantiaca var. major	Day-lily	4	3	Orange-yellow	July	Leaves long and sword-like. Flowers trumpet-shaped, fragrant, measuring 5 inches across. *A. G. I.*
Hemerocallis flava	Lemon Lily	4	3	Deep yellow	June & July	Good on banks of streams or in clumps in front of shrubs. Fragrant, lily-like flowers. *A. F. I.*
Hemerocallis fulva	Homestead Lily	4	3	Orange	July & Aug.	Somewhat larger than H. flava. Flowers lily-shaped and in clusters. Attractive near water or in clumps with shrubs. *A. F. I.*

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Hemerocallis fulva var. Kwanso	Double Day-lily	4	3	Orange	July & Aug.	A variety of the preceding with double flowers. Foliage large and handsome; sometimes prettily variegated. *A. G.*
Hemerocallis Middendorfii		4	2	Orange	June & July	A very pretty species with fragrant flowers in clusters of three or four. Excellent for the border or rock-garden. *A. F. I.*
Hemerocallis Dumortierii		4	1½	Bright yellow	June to Sept.	Very free flowering and one of the best. Excellent in the border. *A. F. I.*
Hemerocallis Thunbergii		4	3	Yellow	June & July	A vigorous growing and very free-flowering species, much resembling H. flava. *A. F. I.*
Hepatica acutiloba	Liver-leaf	4	6 in.	Blue or white	April	One of the earliest plants to flower in the spring. Flowers about ½ inch across and produced in profusion. Good for the rock-garden or under trees. *A. G.*
Hepatica angulosa		4	6 in.	Blue	April	Flowers very showy, about 2 inches across. Pretty foliage. *A. G.*
Hepatica triloba		4	6 in.	Blue	April	Leaves three-lobed; dark green. Flowers small but produced in great abundance. An attractive plant and good for the rock-garden or shady places. *A. G.*

Heracleum villosum	Giant Parsley	4	8	White	July & Aug.	Beautiful, large, deep green leaves. Flowers small and in dense clusters. Good for sub-tropical effects. *A. F.*
Herniaria glabra	Rupture-wort	2 & 4	2 in.	Greenish	July & Aug.	A rapidly spreading plant which is dense in growth. Small flowers in clusters. Good under shrubs or for carpeting. *A. G.*
Hesperis matronalis	Sweet Rocket	4	2½	Lilac	June to Aug.	Common in old gardens. Flowers in clusters, somewhat resembling Phlox paniculata. *A. G. I.*
Hesperis matronalis var. alba		4	2½	White	June to Aug.	A white variety of the preceding.
Heuchera Americana	Alum Root	4	1½	Pink	July	Showy bell-shaped flowers in loose panicles on stout stems about 18 inches long. A good plant for the border. *A. G. I.*
Heuchera sanguinea	Coral Bells	4	1	Red	June to Sept.	Excellent for the border or rock-garden. Flowers abundant in panicles. *A. G. I.*
Heuchera sanguinea var. alba		4	1	White	June to Sept.	Flowers pure white, but not so conspicuous as the type. Good in the wild-garden or rockery. *A. G.*
Hibiscus californicus	Rose Mallow	4	5	White or rose	Sept. & Oct.	Flowers sometimes 5 inches across, with purple centres. Shrubby in growth. Good among shrubs or in the flower border. *B. H.*

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Hibiscus moscheutos		4	5	White or rose	Aug. & Sept.	Flowers very large, tinged with purple. Particularly good near water. *A. F.*
Hibiscus moscheutos var. crimson eye	Crimson-eyed Hibiscus	4	4	White	Aug. & Sept.	Flowers from 5 to 7 inches across; waxy white with velvety crimson centres. Pretty near water, or in the border. Mulching in winter is desirable. *C. E.*
Hibiscus syriacus	Althea	1	8-10	Various	Aug. & Sept.	*S.* Erect and open in growth. Flowers in colors of purple, violet, red, flesh-color and white; some varieties double. One of the few hardy shrubs to bloom in August and September. Foliage dull green and unattractive. *B. C. G.*
Hibiscus syriacus var. foliis variegata		1	8	Deep blue	Aug. & Sept.	*S.* Flowers double and showy, with leaves prettily marked with yellow. *B. C. G.*
Hicoria glabra	Pig Nut	1	60-90			*T.* A round-headed tree with finer foliage and more symmetrical habit than H. ovata. *A. E. G.*
Hicoria minima	Bitternut or Swamp Hickory	1	60-90			*T.* Very spreading in growth. Bearing thin-shelled fruit. Excellent for moist places. *A. E. G.*

Hicoria ovata	Shagbark Hickory	1	50-75			*T.* A native narrow-headed tree, excellent for picturesque effects. Difficult to transplant.
Hieracium aurantiacum	Orange Hawkweed	4	1	Orange	June to Oct.	A pretty plant for the rock-garden or dry spots where few other plants can grow, but a bad weed if allowed to spread. Flowers in clusters somewhat resembling dandelions. *A. G.*
Hippophaë rhamnoides	Sea Buckthorn	2	8	Yellow	May	*S.* Good for seashore planting. Leaves gray-white, narrow. Flowers small and in clusters. *A. G.*
Hollyhock	*See Althæa rosea*					
Houstonia cærulea	Bluets	4	3 in.	Pale blue	May & June	A tufted plant bearing numerous star-shaped flowers. Good in crevices or rocks or in the wild-garden. *A. F.*
Humulus lupulus	Hop	3 & 4	15	Greenish	June	A good vine for covering arbors, walls, fences or tree trunks. Leaves rough; young flowers and hops very fragrant. *A. D. G.*
Hyacinthus candicans	*See Galtonia*					

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Hyacinthus orientalis	Dutch Hyacinth	4	8-12 in.	Various	April & May	An old garden favorite with fragrant bell-shaped flowers on short spikes. Foliage thick, narrow and stiff. Root bulbous. Flowers are double in some varieties, and in colors of blue, white, red, lilac and yellow. Good for planting in masses in open beds or among perennials in the border, where they will flower and disappear before other plants get well started. Set bulbs in August or September 6 inches deep, in good, deep, well-drained soil. Protect in winter with litter or stable manure.
Hydrangea arborescens		1	6	White	June & July	*S.* Erect in growth. Leaves light green, glaucous beneath. Flowers in flat clusters. A good shrub for shady spots. *A. G.*
Hydrangea arborescens var. sterilis	Summer Snowball	1	6	White	June & July	*S.* A form of the preceding with large sterile flowers borne in great masses, practically covering the shrub. A very showy and useful shrub. *A. G.*
Hydrangea radiata or H. nivea		1	6	White	June & July	*S.* Much resembling H. arborescens, but leaves are silvery white underneath. *A. G.*

Hydrangea paniculata	Paniculate Hydrangea	1	8	White	Sept. & Oct.	*S.* One of the most useful flowering shrubs. Flowers in large panicles on erect stems. They turn from white to a beautiful pink and red as fall approaches. The foliage is deep green and is always good. *A. G.*
Hydrangea paniculata var. grandiflora	Large-flowered Hydrangea	1	7	White	Sept. & Oct.	*S.* Immense cone-shaped heads of flowers on pendulous branches. Should be pruned severely each spring and kept low and bushy. *A. G.*
Hydrangea quercifolia	Oak-leaved Hydrangea	1	5	White	August	*S.* Foliage large, very dark green, shaped like oak leaves. Flowers in flat clusters, tinted with yellow. An interesting spreading shrub. *B. C. E. H.*
Hydrangea vestita		1	5	White	June	*S.* The most showy of the early Hydrangeas. Good foliage and large flat flower-clusters. Erect in habit of growth. *A. G.*
Hydrophyllum canadense	Water-leaf	4	1	White	June & July	Leaves palmately divided; flowers bell-shaped in clusters. Good for covering ground under shrubs. *A. F.*
Hypericum aureum	Shrubby St. John's Wort	1	3	Yellow	July & Sept.	*S.* A fine dwarf shrub with unusually good foliage and showy double flowers. Excellent in margins of shrub-borders. *A. G. I.*

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Hypericum densiflorum		1	2½	Yellow	Aug. & Sept.	*S.* Individual flowers small but produced in great quantity, completely covering the shrub. Very dense in growth. A beautiful dwarf shrub. *A. G.*
Hypericum Kalmianum		1	3	Yellow	July & Sept.	*S.* Resembles H. aureum, but the flowers are smaller and the plant more open and erect in growth. *A. G.*
Hypericum moserianum	Gold Flower	4	1	Yellow	July & Aug.	Dark glossy leaves and large, single, bright yellow and orange flowers. Good for the rockery or border. *B. C. H.*
Hyssopus officinalis	Hyssop	4	2	Purple	June to Aug.	Flowers in small spikes; leaves gray, narrow. Very aromatic; good as an edging for flower-beds, but valued mostly for its medicinal qualities. *A. G.*
Iberis saxatilis	Hardy Candytuft	2 & 4	6 in.	White	May & June	An excellent plant for edging or for the rock-garden. Foliage dark green; flowers in pretty clusters in great masses. *A. G.*
Iberis saxatilis var. corifolia		2 & 4	4 in.	White	May & June	Particularly good for the rock-garden. Showy flowers on slightly drooping stems. *A. G.*

Iberis sempervirens	Evergreen Candytuft	2 & 4	1	White	May & June	Excellent for edging or border planting. Fine dark, glossy foliage and flowers completely covering the plant. *A. G.*
Ilex crenata		2	6	Yellow	May & June	*S.* Bushy in habit. Foliage resembles that of the Box-wood. A good hedge-plant for sheltered places and excellent for massing with deciduous shrubs. *B. C. E. G.*
Ilex glabra	Inkberry	2	5	Yellow	June	*S.* Leaves oval and dull green. Flowers insignificant. Showy black berries in racemes. *A. E. G.*
Ilex opaca	Holly	2	8	Yellow	June	*S.* Particularly pretty in winter with its scarlet berries. Excellent among deciduous shrubs for winter effect. Should be severely pruned when transplanted. *B. C. E. F.*
Ilex verticillata	Black Alder	1	6	Yellow	June	*S.* One of the best hardy shrubs with ornamental red fruits, which remain on the branches until mid-winter. It is rather open in growth and should be planted among other shrubs. It prefers a moist soil, but can be grown successfully in any situation. *A. E. G.*
Incarvillea Delavayi		4	2	Purple	June & July	Flowers trumpet-shaped in clusters. Very decorative. Foliage fern-like about 1 foot long. *B. C. H.*

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Inula glandulosa	Flea-bane	4	2	Yellow	July & Aug.	A good border plant with flowers somewhat resembling asters. *A. G. I.*
Ipomœa pandurata	Hardy Moon-flower	3 & 4	10	White	July & Aug.	Good for covering tree trunks or walls. Flowers in clusters, funnel shaped. *A. D. G.*
Iris cristata	Crested Iris	4	8 in.	Lilac	May to July	Good for edging or for the rock-garden. One of the most beautiful of the early Irises. *A. G.*
Iris germanica	German Iris	4	1½	Various	May to July	General favorites and plants of the easiest culture. Showy flowers in shades of yellow, blue, lilac and white. Good in masses along the edge of the shrubbery border. *A. G. I.*
Iris lævigata or Kæmpferi	Japanese Iris	4	2-3	Various	June & July	Flowers large and ranging in colors of white and shades of blue. Beautiful everywhere, particularly so near water. *C. D. F. I.*
Iris orientalis or gigantea	Yellow-banded Flag	4	3-4	Yellow	May & June	Very free flowering and of vigorous growth. *A. G. I.*
Iris pallida or asiatica	Turkish Iris	4	3	Violet	June & July	Fragrant flowers on strong, tall stems. Foliage coarse. Good in mixed borders. *A. D. G. I.*

Iris pseudacorus	Water Flag	4	2-3	Yellow	May & June	Good for bog-planting or near water. Blooms profusely and increases rapidly. *A. D. F.*
Iris pumila	Dwarf Flag	4	8 in.	Violet	May	An excellent early species, blooming most freely and thriving in any situation. Good for the rock-garden or in the border. Other varieties of Iris pumila are: cyanea, rich purple, eburnea, pure white, Florida, lemon yellow. *A. G.*
Iris sibirica	Siberian Flag	4	3	Violet	May & June	Showy flowers in clusters. Foliage long, narrow and dense. *A. D. F. I.*
Iris sibirica var. alba	White Siberian Flag	4	3	White	May & June	A very beautiful free flowering variety of the above.
Iris sibirica var. orientalis	East Siberian Flag	4	2-3	Deep blue	June & July	A most useful and attractive plant for the border or bog-garden. *A. D. F.*
Iris versicolor	Canadian Iris	4	2-3	Purple	May & June	Pretty in bogs or near water. *A. F.*
Iris xiphium	Spanish Iris	4	1	Shades of yellow and white	June & July	Should be planted among other plants, as the leaves disappear soon after the plant has flowered. Multiplies rapidly and should be frequently divided. *B. H. I.*
Itea virginica	Virginian Willow	1	4	White	June & July	*S.* A beautiful native shrub with dense foliage which turns a rich crimson in late summer. Flowers in drooping racemes about 4 inches long. *A. E. G.*

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Jasione perennis	Shepherd's Flower	4	1	Light blue	July & Aug.	Numerous globe-shaped flowers and grass-like foliage. Good in the rock-garden. *A. G.*
Juglans cinerea	Butternut	1	30-40			*T.* Spreading and open in growth. Foliage resembles somewhat that of Ailanthus. Large edible nuts. *A. D. F.*
Juglans nigra	Black Walnut	1	50-70			*T.* A majestic tree, attaining great size. Its edible nuts are borne in great quantity. *A. E. G.*
Juglans regia	English Walnut	1	50-70			*T.* A handsome round-headed tree with large, bright green foliage. Although somewhat tender while young, it is undoubtedly the most valuable of the walnuts. *B. C. D. G.*
Juniperus communis	Common Juniper	2	3-4			*S.* This native evergreen is most useful for covering banks or rocks. It is prostrate, and single specimens will sometimes spread over circles 10 feet in diameter. Foliage light and glaucous. *A. E. G.*
Juniperus communis var. aurea	Golden Juniper	2	3-4			*S.* A very brilliant yellow form of the preceding. Valuable for massing with other evergreens. *A. E. G.*

Juniperus communis var. hibernica	Irish Juniper	2	8-10			*T.* Columnar in growth. Branches upright and leaves light green. A very handsome small tree. *B. D. G.*
Juniperus communis var. suecica	Swedish Juniper	2	7-8			*T.* Somewhat resembling the preceding, but more bushy in growth. *A. D. G.*
Juniperus chinensis or japonica	Japanese Juniper	2	4			*S.* A low dense shrub with spreading, sometimes procumbent branches. Foliage deep green. A most beautiful dwarf shrub. *A. E. G.*
Juniperus chinensis var. argenteo variegata	Variegated Chinese Juniper	2	4-5			*S.* A form of the preceding with tips of branches mostly white. Dense and dwarf in growth. *A. E. G.*
Juniperus chinensis var. aurea	Golden Chinese Juniper	2	4-5			*S.* One of the most brilliant of the low golden evergreens. Best in a sunny situation, where it attains its best color. *A. E. G.*
Juniperus sabina	Savin Juniper	2	3-4			*S.* A very attractive low evergreen, good for hillside planting. Foliage dark green, branches spreading or procumbent. *A. D. G.*
Juniperus sabina var. prostrata	Prostrate Savin	2	1-2			*S.* A pretty prostrate form of the preceding. Excellent for the rockery or in front of low evergreens. *A. D. G.*
Juniperus sabina var. tamariscifolia	Tamarisk-leaved Savin	2	1-2			*S.* Very procumbent. Foliage fine and of a brighter green than the type. Good among rocks. *A. D. G.*

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Juniperus virginiana	Red Cedar	2	20-30			*T.* A beautiful native evergreen. Generally conical in growth. Branches upright and foliage dark green. *A. D. G.*
Juniperus virginiana var. glauca	Silvery Red Cedar	2	15-20			*T.* A vigorous growing form of the preceding, with silvery gray foliage. Particularly attractive if planted among other evergreens of darker color. *A. D. G.*
Juniperus virginiana var. elegantissima	Golden Red Cedar	2	10-15			*T.* More spreading in growth than the type. Tips of the young branches golden yellow and particularly showy in winter. *A. G.*
Juniperus virginiana var. pendula	Weeping Red Cedar	2	5-7			*S.* Branches slender and pendulous. Foliage dark green. A rare and pretty low evergreen. *A. G.*
Juniperus virginiana var. Schotti		2	10-12			*T.* Pyramidal and dense in growth. Foliage light green. *A. D. G.*
Kalmia **augustifolia**	Lamb-kill	2	2-3	Deep pink	June	*S.* Foliage narrow, light green above, pale beneath. A pretty native shrub, good for dry, sunny places. *A. E. G.*

Kalmia latifolia	Mountain Laurel	2	5-10	Rose to white	May & June	*S.* A beautiful native shrub of the easiest culture. It is particularly good along streams, but can be successfully grown wherever it will not dry out in summer. *A. E. F.*
Kalmia polifolia		2	2	Lilac purple	June	*S.* Low and straggling in growth and good among rocks. Leaves narrow and glaucous. *A. E. G.*
Kerria japonica	Globe Flower	1	4-6	Bright yellow	June	*S.* Foliage deep green and very dense. Branches vivid green and particularly showy in winter. A very graceful shrub. *A. D. G.*
Kerria japonica var. flore pleno	Double Globe Flower	4	6-7	Deep yellow	June	*S.* More vigorous in growth than the preceding. Flowers double, numerous and very showy. *A. D. G.*
Kerria japonica var. argenteo-variegata	Variegated Globe Flower	1	2-3	Bright yellow	June	*S.* Dense in growth. Leaves small, light green edged with white. Good in clumps and in front of other shrubs. *A. E. G.*
Kniphofia aloides var. glaucescens	Tritoma or Poker Plant	4	3	Vermilion-scarlet	Aug. & Oct.	One of the most showy of the fall-flowering perennials, with drooping, grass-like leaves and large spikes of glowing flowers. Very effective among other perennials or massed in front of shrubs. The plants are not positively hardy and should be heavily protected with leaves in winter. *B. H. I.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Kniphofia aloides var. nobilis		4	4-5	Orange-red	Aug. to Nov.	Very free-flowering. Flower spikes particularly large on strong, tall stems. *B. H. I.*
Kniphofia aloides var. grandiflora		4	3	Scarlet	Sept. & Oct.	Robust and very showy. *B. H. I.*
Kniphofia aloides var. Pfitzerii		4	3-4	Orange-scarlet	Aug. to Oct.	Flower spikes sometimes 12 inches long. Individual flowers large, salmon-rose at the edge. *B. H. I.*
Koelreuteria paniculata	Varnish Tree	1	30	Orange-yellow	July	*T.* Flowers in large upright panicles. Leaves pinnate, blue-green. A rather pretty lawn tree. *C. E. H.*
Laburnum vulgare	Laburnum	1	10	Yellow	June	*T.* Foliage smooth and dark. Flowers pea-shaped in long racemes. A good tree for small lawns. *B. C. E.*
Laburnum vulgare var. pendula	Weeping Laburnum	1	8	Yellow	June	*T.* A pendulous form of the preceding, generally grafted on stems 6 to 7 feet high. A pretty low tree. *B. C. E.*
Larix Americana	American Larch	1	50			*T.* A very ornamental deciduous, coniferous tree. It is particularly attractive in early spring. Pyramidal in growth. Good among evergreens. *A. D. F.*

Larix decidua or europæa	European Larch	1	40-50			*T.* Compact and pyramidal in growth and much like the preceding. Foliage light green and dense. *A.F.D.*
Larix leptolepis	Japanese Larch	1	40-50			*T.* Undoubtedly the most beautiful of the Larches. The dense, long foliage turns to a bright yellow in autumn. *A. D. E.*
Lathyrus latifolius	Pink Perennial Pea	4	4-5	Rose	July to Sept.	Good for covering banks, rocks or stumps. A free flowering and easily cultivated plant. *A. D. G. I.*
Lathyrus latifolius var. albus	White Perennial Pea	4	4-6	White	July to Sept.	Like the preceding a vigorous, hardy climber, producing flowers as large as the annual sweet pea. *A*
Lathyrus vernus or Orobus vernus	Bitter Vetch	4	1½	Violet	April to May	Dense pale-green foliage, and numerous pea-shaped flowers. Effective in the rock-garden or massed in the border. *A. G. I.*
Lathyrus vernus var. alba		4	1½	White	April to May	A white variety of the preceding.
Lavandula vera	Lavender	4	1-2	Violet	July to Sept.	A good border plant, valued for its sweet-scented leaves and flowers, which, if dried, will long retain their fragrance. *B. C.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Ledum latifolium	Labrador Tea	2	1½	White	May	*S.* A good low evergreen shrub with fragrant leaves and conspicuous flowers in spring. Well adapted for borders of evergreens or shrubbery, and particularly for planting in low places. *A. E. F.*
Leiophyllum buxifolium	Dendrium or Sand Myrtle	2	1½	Light pink	June	*S.* Resembling somewhat the cranberry; good in the rockery or for covering ground under Rhododendrons or other shrubs. *A. E. G.*
Lepachys pinnata	Yellow Cone Flower	4	3-5	Yellow	June	Good among shrubbery or for the back of the flower-border. Flowers cone-shaped with purple centres. *A. G. I.*
Lespedeza bicolor	Tall Desmodium	1	5-7	Purple	August	*S.* Graceful, slender branches with pretty, oval clover-like leaves and a profusion of pea-shaped flowers. *A. D. H.*
Lespedeza japonica		4	2	White	September	More erect in growth than the following. Flowers in showy racemes. Requires heavy protection in winter. *B. H.*
Lespedeza Sieboldi	Tick Trefoil	4	3	Pink	September	Flowers pea-shaped and produced in pendulous sprays. Very attractive with shrubs or in the flower-border. *B. C. H.*

Leucothoë Catesbæi or Andromeda Catesbæi	Leucothoë	2	3-4	White	May	*S.* Large and glossy green leaves on gracefully arching branches. Spikes of flowers resemble Lily-of-the-Valley. Good in masses with Rhododendrons or deciduous shrubs. *A. D. G.*
Liatris pycnostachya	Blazing Star	4	4	Purple	Aug. & Sept.	Showy flowers in long spikes, which are very effective among other perennials or shrubs. Foliage grass-like. *A. G. I.*
Liatris spicata	Blazing Star	4	3	Purple	Aug. & Sept.	Dwarfer and less showy than preceding. Good for the wild-garden. *A. G. I.*
Ligustrum amurense	Amoor River Privet	1	10			*S.* Branches upright. Foliage oval or oblong, similar to that of Ligustrum ibota. It is often used for hedges, and can with pruning be made very dense. In growth it is much like the California Privet, but it is more tender. *B. D. H.*
Ligustrum ciliatum	Upright Japanese Privet	1	4-5	White	June	*S.* Very erect and quite dense in growth. It is sometimes used as a hedge plant, but it is not so hardy or attractive as L. ibota. Its glossy black berries are quite ornamental in winter. *B. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Ligustrum ibota	Japanese Privet	1	5-6	White	June	*S.* One of the hardiest of the Privets, and much used as a hedge plant. A low dense shrub with horizontally spreading branches. Foliage dark and oval. Flowers fragrant and quite prominent. It retains its foliage well into the winter, and turns a beautiful wine color in late summer. Especially attractive in fruit. *A. D. G.*
Ligustrum ovalifolium	California Privet	1	6-10	White	July	*S.* Upright and stiff in habit. Foliage oval, dark green. A common attractive hedge plant. In exposed places it is liable to winter-kill, and should be well mulched with leaves or manure in winter. *A. D. G.*
Ligustrum ovalifolium var. variegatum	Variegated-leaved California Privet	1	4-6			*S.* Like the preceding, this is an almost evergreen shrub, and is good in clumps among or in front of low evergreens of shrubbery. Its foliage is a very brilliant yellow. It is more tender than the type and requires heavy protection in winter. *B. C. G.*
Ligustrum vulgare	Common Privet	1	6-8	White	June & July	*S.* A good hedge plant, with narrow, dull green foliage and quite showy flowers. It produces clusters of black berries which are very prominent and adhere to the shrub all winter. *A. D. G.*

Lilium auratum	Golden-banded Lily	4	3	White, marked with yellow bands, dotted with purple	July & Aug.	This together with L. tigrinum, L. speciosum, L. rubrum and L. tenuifolium are perhaps the most satisfactory for general garden culture. Lilium auratum has extremely showy flowers, sometimes nearly a foot across. This, like other varieties, is effective among Rhododendrons, among rocks where sufficient depth of loam can be had, or massed in the hardy border. All Lilies require a deep loamy soil, and prefer a mixture of old compost, gravel or sand. It is important that good drainage be provided. In planting, the bulbs should be set from 6 inches to 1 foot deep, according to the size of the bulbs. All Lilies are subject to a blight or disease, which is very injuring, and Bordeaux mixture should be applied frequently as a preventive before any blight appears. A light mulch in winter is beneficial, but in planting Lilies, direct contact with manure should be avoided.
Lilium Brownii	Brown's Lily	4	3-4	Rose-red	July & Aug.	Hardy and of the easiest culture.
Lilium canadense	Canadian Lily	4	2-3	Deep orange spotted with brown	July & Aug.	A native species, excellent for massing in shrubbery borders and for wild-gardens.
Lilium candidum	Madonna Lily	4	3	White	June & July	Many flowers borne along the stem. Very ornamental.

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Lilium elegans	Thunbergian Lily	4	2	Red-orange	June & July	Many varieties; one of the hardiest and best species.
Lilium elegans var. fulgens	Bateman's Lily	4	3	Purple-orange	July & Aug.	One of the best for color effects.
Lilium elegans var. Wallacei	Wallace's Lily	4	2	Deep orange	July	A dwarf variety, usually one-flowered.
Lilium Grayi	Gray's Lily	4	2½	Orange	June & July	Similar to L. canadense, but less showy.
Lilium maculatum	Hanson's Lily	4	3	Red-orange	June & July	A formal regular species which is very hardy.
Lilium Henryi	Henry's Lily	4	4-5	Orange-salmon	Aug. & Sept.	A recent introduction and one of the best. Highly ornamental.
Lilium longiflorum	Trumpet or Easter Lily	4	2½	White	July to Aug.	One of the best known varieties. Not perfectly hardy.
Lilium martagon	Martagon Lily	4	4	Purple-pink	June	Flowers small, dull-colored, and less showy than other species.
Lilium philadelphicum	Philadelphia Lily or Wood Lily	4	2½	Orange-red	July & Aug.	One of the best wild varieties. Flowers upright.
Lilium speciosum	Spotted Lily	4	3	Pink-white spotted with red	Aug. & Sept.	There are many varieties, all of which are desirable and hardy. The following are among the best.

Lilium speciosum var. Melpomene	Melpomene Lily	4	6	Pink spotted with crimson and margined with white	Aug. & Sept.	Remarks preceding.
Lilium speciosum var. rubrum		4	3	Red-pink	Aug. & Sept.	Remarks preceding.
Lilium superbum	Turk's Cap Lily	4	4	Orange-red	July & Aug.	Sometimes cultivated in borders and wild-gardens.
Lilium tenuifolium	Siberian Coral Lily	4	1	Brilliant scarlet	June & July	Flowers about 2 inches across and in clusters of twelve; foliage very fine.
Lilium tigrinum	Tiger Lily	4	5	Orange-red	July & Aug.	Very showy, and common in old gardens. *A. G.*
Lilium tigrinum var. splendens	Tiger Lily	4	4	Orange	July & Aug.	A fine variety of the old-fashioned Tiger Lily. It should be substituted for the type in planting.
Lilium tigrinum var. plenescens	Double Tiger Lily	4	4	Orange	July & Aug.	
Linaria cymbalaria	Kenilworth Ivy	4	4 in.	Lilac	July to Sept.	Creeping ivy-like plants. Good for rockeries or ground cover under shrubs. Flowers small but very pretty. *B. H.*
Linum perenne	Blue Flax	4	1	Light blue	May & Aug.	Very attractive in clumps among other perennials or in the rockery. Foliage delicate; flowers borne on slender, erect stems. *A. G. I.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Liquidambar styraciflua	Sweet Gum	1	40	Green	April	*T.* A pretty tree with star-shaped leaves and a peculiar corky bark. Its maple-like foliage takes on a brilliant color of orange and crimson in the fall. Flowers and fruits in globular drooping heads. *A. C. E. G.*
Liriodendron tulipifera	Tulip Tree	1	40-60	Green-yellow	June	*T.* Pyramidal in growth. Bark smooth; leaves large and smooth. Flowers resemble Tulips. Transplant only in the spring. *C. D. F.*
Lobelia cardinalis	Cardinal Flower	4	2-3	Crimson	Aug. & Sept.	A lovely hardy plant, particularly good near streams or in moist, shaded places. Flowers in large brilliant spikes. *A. F. I.*
Lobelia syphilitica or cœrulea		4	2-3	Light blue	September	Like the preceding, this variety thrives best in moist places, but can be grown also in dry soils, where, however, it will be less vigorous. Flowers tubular and in spikes. *A. F. I.*
Lonicera flava		1 & 3	10-15	Orange-yellow	May & June	Coarse and dense in growth. Leaves large, oval, and silvery white beneath. Flowers tubular and fragrant. Berries scarlet and conspicuous in autumn. *A. D. G.*

Lonicera fragrantissima	Fragrant Bush Honeysuckle	1	6	Pink	April to May	*S.* An attractive but quite tender shrub with slender, recurving branches. Flowers fragrant. *B. C. G.*
Lonicera Heckrotti		1 & 3	10	Rose and yellow	All summer	An excellent climber, much like L. sempervirens, but with larger flowers borne in great quantity. *A. D. G.*
Lonicera japonica	Japanese Honeysuckle	1 & 3	10-15	White changing to yellow	June to Aug.	One of the best and hardiest vines for covering porches or arches. It is very floriferous and sweet-scented. It is quite similar to L. Halliana. *A. C. D. G.*
Lonicera japonica var. aureo-reticulata	Golden Honeysuckle	1 & 3	10	White to yellow	June to Aug.	A pretty vine with the younger leaves netted with bright yellow. It does not bloom as freely as the type and is more tender. Good for low trellises or to cover ground among shrubs. *B. C. E. G.*
Lonicera japonica var. chinensis	Chinese Honeysuckle	1 & 3	10	White to yellow	August	Leaves ovate, pubescent, with a purple hue beneath, which is particularly prominent on the young leaves. A somewhat tender but very pretty vine. *B. C. D.*
Lonicera japonica var. Halliana	Hall's Honeysuckle	1 & 3	10-15	White to yellow	Aug. & Sept.	A strong grower with deep green foliage which is almost evergreen. Very free flowering and fragrant. Good for covering banks or trellises. *A. D. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Lonicera Ledebouri		1	6	Scarlet-red	May to July	*S.* Vigorous in growth. Branches spreading and drooping. Leaves deep green, pubescent beneath. A beautiful shrub, but quite tender. *B. C. D. G.*
Lonicera Morrowi		1	6	White	May & June	*S.* One of the most useful hardy shrubs. Upright and dense in growth. It flowers freely, and is covered with bright red fruit from August until winter.
Lonicera periclymenum var. belgica	Belgian Honeysuckle	1 & 3	10-15	Red-yellow	June & Sept.	Foliage light green. Flowers tubular, showy and fragrant. Good for covering trellises, walls, or stumps. *A. D. G.*
Lonicera Ruprechtiana		1	6-8	White	May & June	*S.* Very vigorous in growth. Leaves dark green above, gray beneath. Valued for its abundance of bright red fruit in autumn. *A. D. G.*
Lonicera sempervirens	Scarlet Trumpet Honeysuckle	1 & 3	10-15	Scarlet	June to Sept.	A well-known, useful vine, with clusters of trumpet-shaped flowers. Very free flowering and showy. Leaves large, gray beneath. Fruit in bright yellow clusters. *A. D. G.*

Lonicera spinosa or Albertii	Siberian Honeysuckle	1	2	Rose-pink	May & June	*S.* Leaves small and narrow. Branches slender and pendulous. Individual flowers small but very fragrant. A pretty low shrub and good near rocks or in the shrubbery border. *A. E. G.*
Lonicera Standishi		1	6	Light pink	April	*S.* Spreading in growth. Leaves hairy and half evergreen. *B. C. D. G.*
Lonicera tatarica	Tartarian Honeysuckle	1	6-8	Pink to white	May & June	*S.* A very attractive, useful shrub, with an abundance of fragrant flowers in the spring, and bright red fruit in autumn. *A. D. G.*
Lonicera tatarica var. alba	White Bush Honeysuckle	1	6-8	White	May & June	*S.* More erect in growth than the preceding; flowers larger. *A. D. G.*
Lonicera xylosteum	Fly Honeysuckle	1	6-8	Yellow-white	May	*S.* Foliage oval, dull green. Flowers fragrant and large. Fruit dark red and very showy. *A. D. G.*
Lupinus polyphyllus	Hardy Lupine	4	3	Purple	June & July	Leaves palmate. Flowers pea-shaped, in long spikes. An old garden favorite. *A. G. I.*
Lupinus polyphyllus var. albus	White Lupine	4	3	White	June & July	Like the preceding, this variety is very effective in the wild-garden or in the hardy border. *A. G. I.*
Lychnis alba var. florepleno	Evening Campion	4	2	White	July to Sept.	Flowers double, large and loose in clusters. Spreading in habit; good for the rockery. *A. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Lychnis chalcedonica	London Pride	4	2	Scarlet	June & July	Brilliant clusters of flowers. Foliage hairy and narrow. A valued old garden flower. *A. G. I.*
Lychnis coronaria or Agrostemma coronaria	Rose Campion	4	2	Crimson	June to Aug.	Leaves gray and hairy. Very attractive while in bloom. Flowers single and about 1½ inches across. A good plant for the border. *A. G.*
Lychnis dioica var. flore-pleno	Morning Campion	4	2	Crimson	All summer	Flowers in loose clusters, double. Very showy; good in masses in the border or for the rockery. *A. G.*
Lychnis flos Javis or Agrostemma flos Javis		4	2	Rose	June & July	Denser in growth than the above and flowers smaller in size. Very showy. *A. G.*
Lychnis flos-cuculi	Cuckoo Flower	4	2	Pink	All summer	A good border plant, much resembling the preceding.
Lychnis flos-cuculi var. alba	White Cuckoo Flower	4	2	White	All summer	Double flowers borne in great profusion all summer. Spreading in habit and particularly good for the rockery. *A. G.*
Lychnis flos-cuculi var. plenissima		4	1	Deep pink	All summer	One of the best hardy perennials. It is a most persistent bloomer, and several beautiful large sprays of flowers can be cut from each plant daily throughout the summer. *A. H. I.*

Lychnis Haageana	Shaggy Lychnis	4	1	Orange and crimson	June to Aug.	Flowers nearly 2 inches across in clusters. The plant becomes dormant immediately after flowering, and it is best if planted among other dwarf perennials. Good also for the rockery. *A. H.*
Lychnis viscaria var. splendens	Ragged Robin	4	1	Rose	June	Foliage grass-like and tufted. Flowers in close panicles. Good for the border or rock-garden, and a profuse bloomer. *A. G. I.*
Lycium halimifolium	Box-thorn or Matrimony Vine	3	8-10	Purple	June	While the Lycium is generally regarded as a climber, and is good for low trellises, it is very effective in the shrubbery border, and good for covering stumps or banks. Its flowers are not conspicuous, but it has great quantities of brilliant crimson berries in autumn along gracefully curving branches. Spreads rapidly, and difficult to eradicate when once established. *A. D. G.*
Lycium chinense	Chinese Box-thorn	3	15	Purple	June	Similar to the preceding, but of more robust growth.
Lycoris squamigera or Amaryllis Hallii	Hall's Amaryllis	4	2	Rose-red	July	An interesting plant with long, narrow foliage which disappears before the fragrant flowers are produced. Best when planted among other perennials. Flowers single, about 4 inches across, and borne on stout stems. *B. H.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Lysimachia nummularia	Money-wort	4	4 in.	Yellow	June	A pretty, round-leaved, creeping plant. Good to cover ground under trees where grass will not grow, or for the rockery. *A. D. G.*
Lysimachia clethroides	Japanese Loose Strife	4	2	White	June & July	Graceful spikes of flowers on slender stems. A good plant for the border. *A. G. I.*
Lythrum salicaria	Purple Loose Strife	4	4	Purple	July & Aug.	Foliage willow-like; flowers in graceful spikes. Good in the bog-garden or along streams. *A. F. I.*
Lythrum salicaria var. roseum superbum		4	4	Pink	July & Aug.	Much like the preceding, but with pink flowers which are very pretty and showy.
Magnolia acuminata	Cucumber Tree	1	50	Yellow-green	May	*T.* Pyramidal in growth. Leaves oval and 7 to 8 inches long. Fruit carmine, shaped like a cucumber. A good lawn tree. Should be transplanted only in the spring. Hardy when well established. *A. C. D. G.*
Magnolia hypoleuca	Silver-leaved Magnolia	1	50-60	White	May & June	*T.* A rare but pretty tree with long silvery leaves; flowers about 6 inches across, sweet-scented. Hardy when well established. *C. D. F.*

Magnolia Fraseri		1	30	Lemon-yellow	May	*T.* A spreading, very ornamental tree. Leaves large. Flowers sweet-scented, about 6 inches across. Fruit rose-colored and showy. More tender than the preceding. *B. C. D. H.*
Magnolia glauca	Swamp Bay	1	20	White	May & June	*T.* Handsome small tree with long glossy leaves, glaucous beneath. Flowers fragrant, about 3 inches across. Fruit pink and showy. Hardy when well established. *A.C.F.*
Magnolia macrophylla	Large-leaved Cucumber Tree	1	30-40	White with purple tints	May & June	*T.* Spreading in growth. Leaves sometimes 2 feet long. Flowers fragrant; fruit rose-colored and conspicuous. Transplant only in spring. *B. C. D. F.*
Magnolia tripetala	Umbrella Tree	1	30-40	White	May & June	*T.* Spreading in growth. Leaves about 12 inches long, oblong. Flowers about 3 inches across and have a disagreeable odor. Fruits large, oblong, pink. Transplant only in the spring. *C. D. F.*
Magnolia Soulangeana	Soulange's Magnolia	1	10-15	Purple-white	May	*T.* Like the following named varieties, this is a very popular small tree or shrub, well adapted for lawn planting. The leaves are about 6 inches long and the flowers 4 to 5 inches across, sweet-scented. The Japanese Magnolias are reliably hardy when well established. They should all be transplanted in the spring. *C. F.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Magnolia Soulangeana var. Alexandrina	Japanese Magnolia	1	10-15	Light pink	May	One of the earliest to bloom.
Magnolia Soulangeana var. Lennei	Lenne's Magnolia	1	10-15	Deep crimson	May	Flowers large, late blooming.
Magnolia Soulangeana var. speciosa	Japanese Magnolia	1	10-15	Purple-white	May	
Magnolia stellata	Hall's Magnolia	1	6-8	White	April	*S.* A very beautiful dwarf tree or shrub. Flowers 3 to 4 inches across, numerous, star-shaped, sweet-scented. The earliest of the Magnolias to bloom; comparatively very hardy. *C. E. F.*
Malva moschata	Musk-mallow	4	2	Pink	June to Sept.	A profuse bloomer. Flowers single, sweet-scented. Good in the border or among rocks. *A. G.*
Malva moschata var. alba	White Musk-mallow	4	2	White	June to Sept.	Like the preceding, this variety is effective if planted in masses against taller plants. Its pure white flowers completely cover the plants. *A. G.*
Marrubium vulgare	Horehound	4	2	White	July	A bitter aromatic herb with whitish, hairy leaves. Often used in medicines for coughs and colds. *A. G.*

Melissa officinalis	Balm	4	1	Pale yellow	July	Well-known sweet herb with whorls of white or yellow-white flowers. *A. G.*
Melissa officinalis var. variegata	Variegated Balm	4	1			Leaves having silvery white markings.
Menispermum canadense	Moon-seed	1, 3	10-15	Yellow	July	Good for covering tree trunks, stumps or walls. Flowers single. Fruit crescent-shaped. An interesting plant; one particularly good in moist soil. *A. D. F.*
Mentha piperita	Peppermint	4	1	Purple	June	A common garden-herb with strong aromatic qualities. *A. G.*
Mentha spicata	Spearmint	4	1	White-purple	June	Flower spikes 2 to 4 inches long; creeping in habit of growth. *A. G.*
Mertensia pulmonarioides	Lungwort	4	1-2	Pale blue	April to May	Good for the rockery or hardy border. Flowers tubular and very showy, in terminal clusters. Good for moist places. *A. G.*
Miscanthus sinensis or Eulalia japonica	Japanese Pampas Grass	4	4	Red-brown	October	Leaves narrower than those of the following. *C. F. I.*
Miscanthus sinensis var. gracillimus or Eulalia japonica var. gracillimus	Ornamental Grass	4	5	Red-brown	October	Long, narrow leaves and plume-like spikes of flowers. Good in clumps with shrubbery, in the hardy border or near water. Very ornamental. *C. F. I.*
Miscanthus sinensis var. variegatus	Variegated Pampas Grass	4	4	Red-brown	October	Leaves green and white, variegated. *C. F. I.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Miscanthus sinensis var. zebrinus	Zebra Grass	4	4	Red-brown	October	Leaves prettily marked with bars of yellow. *C. F. I.*
Mitchella repens	Partridge Berry	2	2-3	White	June	A trailing evergreen with round, glossy foliage. Flowers in pairs, waxy, delicately tinted with pink; fragrant. Bright red berries adhere to stems all winter. Good for the rock-garden or under trees. *A. H.*
Molinia cœrulea var. variegata or Aira cœrulea	Hair Grass	4	1½	Purple		Leaves coarse, stiff and striped yellow and green. Flowers in spikes, showy. Good for edging coarse flower-beds. *A. G.*
Monarda didyma	Oswego Tea or Bee Balm	4	3	Bright red	June to Sept.	A brilliant aromatic free-flowering herb. Good in the mixed border and in moist places. *A. F. I.*
Monarda didyma var. alba	White Bergamot	4	2	White	July	
Monarda fistulosa	Bergamot	4	2	Purple	July	Free-flowering; less showy than the preceding. Good in the wild-garden.
Montbretia	*See Tritonia*					
Morus alba	White Mulberry	1	30-40			*T.* Bushy in growth. Fruit edible, very sweet, usually white or violet. Often planted as undergrowth, and to attract birds. *A. D. G.*

Morus alba var. tartarica pendula	Tea's Weeping Mulberry	1	8-10			*T.* A small tree with drooping branches and dense, deep green foliage. Generally grafted on stems 7 to 8 feet high. *A. C. G.*
Morus rubra	Red Mulberry	1	50-60			*T.* Spreading in growth. Leaves large and deeply lobed. Fruit deep red and of good flavor. Like Morus alba, valuable for attracting birds. *A. D. G.*
Muscari botryoides	Grape Hyacinth	4	4-6 in.	Pale blue or white	April	Bulbous. Very attractive. Free flowering. Flowers in loose spikes. Good among perennials, or massed in edges of shrub borders. Has no odor. *A. G. I.*
Myosotis palustris	Forget-me-not	4	1	Light blue	May & June	Good near water or in damp places in the rock-garden. *B. F. I.*
Myrica cerifera	Candle Berry	1	4-5			*S.* A beautiful native shrub with spreading branches and deep green foliage. Good for sandy or gravelly banks, especially near salt water. *A. E. H.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Narcissus bulbocodium	Hoop Petticoat Daffodil	4	6-8 in.	Various	April & May	Delicate and pretty, low bulbous plants well adapted for the hardy border, for planting under shrubs, or for naturalizing in turf. Narcissi are among the most common garden flowers and include numerous species double and single. The colors are yellow and white. With but few exceptions they are very hardy, and thrive in any well-drained soil. The bulbs should be planted in September or October, 4 or 5 inches deep. A slight protection with leaves or coarse manure is beneficial.
Narcissus pseudo-narcissus	Daffodil	4	6-8 in.	Yellow	April & May	Single "trumpet" and double "Von Sion" forms.
Narcissus poeticus	Poet's Narcissus	4	6-8 in.	White with yellow edge on tube		
Narcissus Jonquilla	Jonquil or Campernella	4	8-10 in.	Yellow	April & May	Narcissus includes the varieties commonly called Jonquils or Campernella, which grow from 8 to 15 inches tall and are generally very fragrant.

Nemopanthus fascicularis	Mountain Holly	1	6	Yellow	June	*S.* A shrub valued for the showy, pendulous red berries which are produced in autumn. It resembles closely Ilex verticillata, being erect in growth, with narrow, dull green leaves and shiny black twigs. *A. E. F.*
Nierembergia rivularis	White Cup	4	4-6 in.	White	All summer	Desirable for banks of streams or for the rock-garden. Flowers are pure white, cup-shaped, about 1½ inches across. The plant is spreading in habit and resembles Campanula carpatica. *B. F.*
Nymphæa odorata	Water Lily	4		White	June to Sept.	Good in natural or artificial ponds. Leaves round, leathery; flowers very sweet-scented. The bulbs should be planted in the spring, and prefer a mixture of peaty loam and barn-manure. Water lilies thrive best in a water not less than 2 feet deep.
Nymphæa odorata var. rosea	Cape Cod Water Lily	4		Pink	June to Sept.	Leaves dark red on both sides.
Nyssa sylvatica	Tupelo, Sour Gum or Pepperidge	1	40-50			*T.* A very picturesque tree with leathery, glossy foliage and peculiar twiggy branches. One of the most brilliant crimson trees in autumn. Should be transplanted only while young, and pruned severely. *A. E. F.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Œnothera fruticosa	Sun Drops	4	2-3	Yellow	June & July	A very showy, somewhat shrubby plant; one worthy of a place in the hardy border. A profuse bloomer. *A. F.*
Œnothera fruticosa var. Youngii	Yellow Evening Primrose	4	2	Bright yellow	All summer	Vigorous in growth, with decumbent, slender branches. These are completely covered with single flowers which are about 1½ inches across. Particularly good for the rockery. *A. B. F.*
Œnothera Missouriensis	Missouri Primrose	4	1	Bright yellow	June to Aug.	Flowers single, often 5 inches across. A very free bloomer and attractive in the rock-garden or border. *A. B. F.*
Œnothera speciosa	White Evening Primrose	4	1½	White	Aug. & Sept.	Very free-flowering. Branches slender. Flowers about 1½ inches across, turning light pink with age. A good plant for the border or rockery. *A. B. F.*
Onoclea sensibilis	Sensitive Fern	4	1½			A hardy native fern with broad, triangular leaves. Good under trees or in the rock-garden. *A. G.*
Onoclea struthiopteris or Matteuccia	Ostrich Fern	4	3			Erect, dark green, feathery foliage. Effective if massed back of smaller ferns. Prefers a rich, moist soil. *A. F.*

Ononis rotundifolia	Round-leaved Rest Harrow	4	1	Deep rose	June	Trifoliate leaves. Flowers pea-shaped, in racemes. Somewhat shrubby in growth, and good for the rockery. *A. G. I.*
Opuntia missouriensis	Prickly Pear	2, 4	1	Bright yellow	July & Aug.	An interesting, low growing, spreading cactus with showy flowers 2 to 3 inches across. Joints obovate, with innumerable sharp, reddish spines. Good among rocks. *A. G.*
Opuntia vulgaris	Commo.. Cactus or Prickly Pear	2, 4	1	Dull yellow	June to Sept.	Resembles the preceding, but with lighter green or grayish spines. *A. G.*
Origanum vulgare	Wild Marjoram	4	1½	Purple	June	A spreading plant with quite showy flower clusters. Foliage fragrant and often used for seasoning. *A. G.*
Osmunda cinnamomea	Cinnamon Fern	4	4			One of our most common and most showy ferns; fronds deep green, sometimes 6 to 8 inches wide. Attractive in masses under trees. *A. F.*
Osmunda claytoniana	Interrupted Fern	4	3			Excellent for low places, but less decorative than either of the other Osmundas.
Osmunda regalis	Royal Fern	4	3			Well adapted for open and moist places. Leaves smooth and pale green, sometimes bearing panicles of flower-like fruits. *A. F.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Ostrya virginica	Iron Wood or Hop Hornbeam	1	15			*T.* Birch-like in appearance, conspicuous in late summer because of the bladder-shaped fruits in drooping clusters. Older bark in fine flakes. A good tree for dry places. *A. D. G.*
Oxydendrum arboreum or Andromeda arborea	Sorrel Tree	1	10	White	August	*S.* Leaves peach-like, assuming a brilliant autumn tint. Flowers in clusters, bell-shaped. Open in growth. *B. H.*
Pachysandra terminalis		2, 4	6-12	White	June	A prostrate perennial with dense, glossy foliage. Flowers in small spikes. Good for covering ground under trees or shrubs; also attractive in the rockery. *A. E. F.*
Pachysandra terminalis var. variegata		2, 4	6-12	White	June	A green-and-white leaved variety of the preceding.
Pæonia Moutan or P. arborea	Tree Peony	4	3	Various	May to June	*S.* A low-branching shrub, producing flowers like those of the perennial Peonies. Flowers sometimes double. A great many varieties are cultivated, and they can be had with pure white, rose-colored, and striped white and pink flowers. Leaves large, dull green. The tree peony is pretty in small groups on the lawn, or in the

						shrub border. It requires a sheltered position and deep rich loam. Nearly all varieties are fragrant. *B. C. E. F.*
Pæonia officinalis	Common Peony	4	2½	Crimson	May & June	Pæonia officinalis is the most common of the peonies. It has an attractive, deep green, divided foliage, with semi-double, sweet-scented flowers. All of the hybrid varieties are gross feeders and thrive best in deep rich soils. Peonies are very attractive in borders with other perennials, or in groups in front of shrubs. The varieties of peonies offered for sale number hundreds. Following are a few named varieties which are perhaps the most distinct and best: PINK.—Duchess de Nemours, Bicolor, Carnea elegans, Fragrantissima Delectissima, Perfection, Victor Lemoine, Wilhelmina. RED.—Mad Guerin, Buckii, Candida Flore-pleno, Carolina Mather, Couronne de Roses, Francis Ortegat, Fulgida, King of Roses, Officinalis rosea, Rosea grandiflora. WHITE.—Festiva maxima, Alba superba, Amabilis grandiflora, Delecourt Verhille, Diamond Zellow, Triomphe de Paris. PARTI-COLORED.—Baron Rothschild, rose and salmon; Candida Flore-pleno,

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						dark red, rosy centre; La France, pink with yellow centre; Maiden's Blush, white with pink centre; Md. Breon, rose, centre yellowish; Salvator, rose, white centre.
Pæonia tenuifolia	Cut-leaved Peony	4	1½	Deep crimson	May to June	Foliage dense and finely divided. Flowers exceedingly pretty, produced on erect stems. An attractive border plant. *A. F.*
Pæonia tenuifolia var. flore-pleno		4	1½	Deep crimson	May to June	A semi-double variety of the preceding.
Papaver nudicaule	Iceland Poppy	4	1	Bright yellow	May to Aug.	Single cup-shaped flowers produced in great abundance; individual flowers about 1½ inches across. If cut freely, plants continue to bloom until late autumn. Good dotted among other perennials or in the rockery. *B. G. I.*
Papaver nudicaule var. album	White Iceland Poppy	4	1	White	May to Aug.	
Papaver nudicaule var. miniatum		4	1	Deep orange	May to Aug.	
Papaver orientale	Oriental Poppy	4	2	Scarlet	June & July	Robust and very decorative foliage. Flowers are sometimes more than 6 inches across, of a brilliant scarlet

						color. As the foliage dies soon after the flowering period, the plants should be scattered among other perennials. They start to grow very early in the spring, therefore they transplant best in August and September. *A. G.*
Papaver orientale var. Blush Queen		4	2	Pale pink	June & July	A good hybrid form of P. orientale.
Papaver orientale var. Parkmanni	Parkman's Poppy	4	2	Scarlet	June & July	Flowers very large and blotched with black.
Papaver orientale var. Royal Scarlet		4	2½	Scarlet	June & July	Exceedingly large flowers, sometimes 12 inches across.
Papaver orientale var. Silver Queen		1	1½	Silvery-white		Comparatively low growing with large flowers of a peculiar silvery-white character 6 to 8 inches across.
Paradisea liliastrum	St. Bruno's Lily	4	2	White	June	A tuberous-rooted plant of great value. Foliage coarse, sword-shaped. Flowers in showy clusters, lily-like. Good for the hardy border or for lawn vases. Requires plenty of water when in bloom. Protect in winter. *H. I.*
Paulownia imperialis	Empress Tree	1	25-30	Pink	June	*T.* A tree not unlike the Catalpa, but with larger leaves, which sometimes measure more than a foot across. It is inclined to die to the ground in winter. Each year it

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						sends up a vigorous growth which is tropical in effect. It will thrive in a well-sheltered position. Flowers in pink panicles, but the tree rarely blooms north of New York city. *B. C. D. H.*
Pavia	*See Æsculus*					
Pentstemon acuminatus	Beard Tongue	4	2	Pink-lilac	June & July	A good border plant with showy panicles of flowers on erect stems. *A. G. I.*
Pentstemon barbatus var. Torreyi	Torrey's Pentstemon	4	5	Yellow-scarlet	July & Aug.	Most graceful and hardy. Flowers tubular in long panicles. Very effective among other perennials. *A. G. I.*
Pentstemon diffusus	Diffuse Pentstemon	4	2	Light purple	June & July	A somewhat tender, shrubby plant with spikes of tube-shaped, showy flowers. A good border plant. *B. G. I.*
Pentstemon lævigata var. Digitalis	Foxglove Pentstemon	4	3	Purple-white	June & July	Flowers very large, somewhat resembling the Foxglove. Erect in habit of growth. *B. C. G. I.*
Pentstemon grandiflorus	Orchid-flowered Pentstemon	4	2	Lilac	June & July	Flowers tubular, sometimes 2 inches long. Foliage broad, gray-green. A very beautiful variety, but quite tender. *B. C. G. I.*

Pentstemon ovatus	Round-leaved Pentstemon	4	2½	Purple	May & June	Foliage glaucous; individual flowers small, but produced in great quantities. A pretty border plant. *B. C. G. I.*
Periploca græca	Silk Vine	3	15	Purple	July	A rapid growing, coarse vine with glossy, leathery leaves. Good for covering banks, tree trunks and heavy trellises. *A. D. F.*
Persica vulgaris	*See Prunus*					
Phalaris arundinacea var. variegata	Variegated Reed Grass	4	3	White	August	A pretty, variegated ribbon-grass, which is common in old gardens. Good in masses along streams or with coarse perennials. *A. F.*
Phellodendron amurense	Chinese Cork Tree	1	20	Green-white	June	*T.* Foliage feathery and tropical in effect. Conspicuous black berries in autumn. Good for shelter belts or among coarse shrubs. *A. D. G.*
Philadelphus coronarius	Mock Orange or Syringa	1	8	White	May to June	*S.* A well-known shrub with sweet-scented flowers; one which is good for the shrubbery border. Foliage large, oval; flowers cream-white, in racemes. *A. D. G.*
Philadelphus coronarius var. aureus	Golden Syringa	1	5-6	White	May & June	*S.* A compact shrub with very brilliant yellow foliage in the spring. It holds the color fairly well throughout the summer. Good for contrast with dark-leaved shrubs. *A. E. G.*

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Philadelphus coronarius var. dianthiflorus		1	4-5	White	June	*S.* Compact and dwarf in growth. Foliage large, oval; flowers few and not sweet-scented. *A. E. G.*
Philadelphus coronarius var.multiflorus plenus	Double Mock Orange	1	4-5	White	June	*S.* Erect and dense in growth. Flowers large, double, but not scented. *A. E. G.*
Philadelphus Lemoinei	Lemoine's Syringa	1	4-5	White	May	*S.* Branches slender and arching. Flowers double in large racemes; very sweet-scented. One of the best dwarf spring-flowering shrubs. *A. D. G.*
Philadelphus Lemoinei var. Avalanche		1	3-4	White	May & June	*S.* Very erect in growth. Leaves small and narrow. Branches slender and covered with showy, white flowers. *A. E. G.*
Philadelphus Lemoinei var. Gerbe de Neige		1	3-4	White	May & June	*S.* Resembles the preceding, but has larger flowers. *A. E. G.*
Philadelphus Lemoinei var. Mont Blanc		1	4	White	May & June	*S.* Erect in habit. Flowers very large and showy. An excellent dwarf shrub. *A. D. G.*
Philadelphus Gordonianus	Gordon's Syringa	1	8-10	White	June & July	*S.* A good, coarse shrub, with large, deep green foliage; showy flowers in large, scentless panicles. Bushy in habit of growth. *A. D. G.*

Philadelphus inodorus		1	10-12	White	June & July	*S.* A common garden shrub with beautiful, large and showy, scentless flowers. Vigorous and spreading in growth; good for the shrubbery border. *A. H. G.*
Phlomis tuberosa	Jerusalem Sage	4	3	Rose-purple	July	A good plant for the wild-garden. Somewhat shrubby in growth. Leaves heart-shaped; flowers in close whorls along the branches. *A. G.*
Phlox amœna	Hairy-leaved Phlox	4	6 in.	Deep pink	April & May	Good for the rock-garden or for covering ground among shrubs or other perennials. Very showy while in bloom, the flat clusters of flowers completely covering the plant. *A. G.*
Phlox ovata	Carolina Phlox	4	1½	Rose	June & July	A good border plant with showy clusters of flowers produced on upright stalks. *A. G. I.*
Phlox ovata var.suffruticosa, Miss Lingard	Smooth-leaved Tall Phlox	4	2½	White with pink centre	June to Aug.	The Phlox suffruticosa varieties are the earliest of the tall Phloxes to bloom. The foliage is smooth and broad and the flowers are carried on erect and strong stems. Good in the hardy border. *A. G. I.*
Phlox ovata var.suffruticosa, Indian Chief		4	2½	Light purple	June to Aug.	A very free-flowering form of the preceding.
Phlox ovata var.suffruticosa, White Swan		4	2½	Pure white		A strong grower with good foliage and large individual flowers in rather open panicles.

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Phlox paniculata or decussata	Perennial Phlox	4	2-3	Various	July to Oct.	The perennial Phloxes are among the best known and most satisfactory garden plants. The colors are white, red, salmon, purple, and parti-colored. They are most effective in masses of one color. The seeds germinate readily if allowed to ripen on the plants and to drop on the ground; and as seedlings of any variety will produce mostly magenta-colored flowers, the old flowers should be cut as soon as they fade, and before they can form seeds. Phloxes prefer a rich and somewhat moist soil. With good cultivation they will sometimes produce panicles a foot long. The plants increase rapidly in size, and it is well to dig up and divide the old stools at least every fourth year. Phloxes are subject to mildew, therefore they should be treated occasionally with Bordeaux mixture. If late blooms are desired, the tips of the shoots may be pinched once or twice in early summer. A great number of varieties are offered for sale by nurserymen, and following are a few of the most distinct and best named varieties:

Phlox paniculata varieties						WHITE VARIETIES. — Independence, tall, large spikes; Ixion, pink eye; Saison Lierval, crimson eye; Charlotte Saison, deep pink centre; Edith, dwarf; General Trochu, scarlet eye; Jeanne D'Arc, pure white; J. G. Von Lasburg, pure white; Richard Wallace, rosy crimson eye. RED VARIETIES.—Coccinea, rosy red and large; Coquellicot, vermilion scarlet; Ornament, carmine; Eclaireur, carmine, salmon centre; Gen. Brice, fiery red, purple centre; Joseph Barr, carmine; Madame P. Langier, dark red. PURPLE VARIETIES.—Le Mahdi, deep purple; Lord Raleigh, violet purple; Wm. Ramsey, light purple with magenta centre. PINK VARIETIES.—Gen. Chancy, scarlet-pink, tinted salmon; Annie Cook, soft pink and very sweet; Peachblow, deep pink and large; R. P. Struthers, reddish-pink, tinted orange; Le Soleil, magenta pink; Pantheon, deep pink, individual flowers very large. LILAC VARIETIES.—Cross of Honor, deep lilac, margined white; L'Esperance, magenta lilac and very large.
Phlox divaricata	Canadian Phlox	4	1-1½	Lilac	May	Flowers fragrant, produced in loose clusters. Spreading in habit; good for the rockery or border. *A. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Phlox Stellaria		4	6 in.	Pale blue	April & May	Creeping in habit. Flowers scattered, star-shaped. A pretty plant for the rock-garden. *A. G.*
Phlox subulata	Moss Pink	4	6 in.	Purple-pink	April & May	A pretty creeping plant with moss-like foliage, which is completely covered with flowers during early spring. Good for carpeting or for the rock-garden, but spreads rapidly and it is difficult to eradicate when once established. *A. G.*
Phlox subulata var. alba	White Moss Pink	4	6 in.	White	April & May	A white free-flowering form of the preceding.
Phlox subulata var. The Bride		4	6 in.	White with pink centre	April & May	
Phlox subulata var. frondosa		4	6 in.	Rose	April & May	
Physalis Franchetti	Chinese Lantern Plant	4	2	Red	July to Oct.	An interesting plant grown for its fruit, which, when ripe, is glowing red. Good scattered among other perennials or among rocks. *B. H.*
Physocarpus opulifolius or Spiræa opulifolia	Nine Bark	1	8-10	White	June	*S.* A strong-growing shrub with dull green foliage; flowers in clusters about 3 inches across. Branches spreading,

						somewhat drooping. An excellent shrub for massing and for quick effect. *A. D. G.*
Physocarpus opulifolius var. aurea	Golden-leaved Spiræa	1	8-10	White	June	*S.* A variety of the preceding with bright yellow foliage and showy clusters of flowers. A most useful coarse shrub. *A. D. G.*
Physostegia virginiana	False Dragon Head	4	2	Rose-purple	July & Aug.	Erect, bushy plants with showy flowers in terminal racemes. A good border plant. *A. F. I.*
Physostegia virginiana var. alba		4	2	White	July & Aug.	A white-flowering form of the preceding.
Picea alba	White Spruce	2	50-75			*T.* Pyramidal and dense in growth. Foliage silvery-green. A very ornamental hardy tree. Good as a single specimen for the lawn, also excellent for windbreaks or hedges. *A. G. D.*
Picea alba var. aurea	Glory of the Spruces	2	15-20			*T.* More open in growth than the preceding. The tips of the leaves are of a beautiful golden yellow. *A. E. G.*
Picea Alcockiana	Alcock's Spruce	2	25-30			*T.* Branches slender and spreading. Foliage dark green above, silvery beneath. The cones are very conspicuous while young, being bright blue in color and erect in habit of growth. The cones become drooping at maturity. A good tree for the lawn. *A. E. G.*

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Picea Engelmanni	Engelmann's Spruce	2	50-60			*T.* Dense and pyramidal in growth. Foliage steel-blue. A very ornamental, hardy tree. *A. E. G.*
Picea excelsa	Norway Spruce	2	50-75			*T.* A most useful tree for screens or windbreaks. Symmetrical in growth when young, with spreading and somewhat pendulous branches. As the tree matures it often becomes uneven in habit of growth. Foliage dark shiny green. *A. D. G.*
Picea excelsa var. conica		2	10			*T.* Dwarf, pyramidal and very dense in growth. A pretty low-growing evergreen. *A. E. G.*
Picea excelsa var. aurea	Golden Norway Spruce	2	30-40			*T.* Foliage brilliant golden in the spring. *A. D. G.*
Picea excelsa var. Finedonensis	Finedon Spruce	2	30-40			*T.* Open in growth. Foliage pale yellow at first, becoming bronze-brown and finally light green. *A. G. D.*
Picea excelsa var. Gregoryana	Cushion Spruce	2	2-3			*S.* Foliage light green and dense. Flat and cushion-like in growth. An attractive dwarf evergreen. *A. E. G.*

Picea excelsa var. inverta	Inverted Spruce	2	10-15			*T.* An interesting small tree with drooping branches closely appressed to the stem. Good in front of taller evergreens and as a single specimen on large lawns. *A. E. G.*
Picea excelsa var. pumila		2	6			*T.* A pretty dwarf tree with deep green foliage. Conical and dense in growth. *A. E. G.*
Picea excelsa var. pygmæa		2	6			*T.* In growth like the preceding, but with lighter green foliage. *A. E. G.*
Picea excelsa var. pyramidalis	Pyramidal Spruce	2	15-20			*T.* Deep green foliage on branches ascending at narrow angles, forming a narrow conical tree. Rather open in growth. *A. D. G.*
Picea nigra or Picea mariana	Black Spruce	2	20-30			*T.* Branches slender, often somewhat pendulous, forming a narrow, irregular head. Less decorative than the other Piceas. Foliage generally blue-green. *A. E. G.*
Picea nigra var. Doumetti		2	6-8			*T.* An ornamental small tree with ascending crowded branches, forming a dense conical tree. Foliage glaucous. *A. E. G.*
Picea orientalis	Eastern Spruce	2	10-15			*T.* A very graceful spruce with dark, glossy foliage and ascending, spreading branches. Valuable for smaller gardens. *A. E. G.*

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Picea polita	Tiger Tail Spruce	2	25-30			*T.* Dense and pyramidal in growth. Branches rigid and stout. Foliage at right angles to twig, thick, broad, dark green and very sharply pointed. A rare and very distinct spruce. *B. E. G.*
Picea pungens	Colorado Blue Spruce	2	60-70			*T.* Branches horizontal, stout and in remote whorls, forming a broad, symmetrical tree. Foliage rigid, incurved, blue-green to silvery-white. An attractive, ornamental tree, one particularly good for large lawns. *A. E. G.*
Picea pungens var. glauca		2	60-70			*T.* A form of the preceding with particularly rich blue foliage. *A. E. G.*
Picea pungens var. Kosteriana	Koster's Blue Spruce	2	60-70			*T.* The bluest strain of the Colorado Spruce. *A. E. G.*
Pieris japonica or Andromeda japonica		2	3	White	May	*S.* Foliage rich and smooth. Flowers in racemes and very showy. A most beautiful low evergreen. *B. E. G.*
Pieris floribunda or Andromeda floribunda	Lily-of-the-Valley Shrub	2	2-3	White	May & June	*S.* A valuable low evergreen plant. Flowers delicate and in panicles. Good with Rhododendrons. *C. E. G.*

Pieris Mariana or Andromeda Mariana	Stagger Bush	1	10	White and pink	June	*S.* A pretty low bush with waxy white flowers in racemes. Foliage resembles that of the Blueberry, and turns a bright yellow-scarlet in autumn. *A. E. G.*
Pinus larico var. austriaca	Austrian Pine	2	40-50			*T.* A spreading tree with long, dark green, rigid foliage. Good for shelter planting and thrives well near the sea-shore. *A. D. G.*
Pinus cembra	Swiss Stone Pine	2	20-30			*T.* Narrow, dense and pyramidal in growth. Foliage 2 to 3 inches long, blue-white. *A. E. G.*
Pinus densiflora	Japanese Red Pine	2	40-50			*T.* A spreading tree, resembling the Austrian Pine, but with longer blue-green foliage. Good for sea-shore planting. *A. D. G.*
Pinus excelsa	Lofty Bhotan Pine	2	40-50			*T.* Spreading and slightly ascending branches, forming an open pyramidal tree. Leaves drooping, blue-green, sometimes 6 to 8 inches long. A handsome tree for sheltered positions. *B. D. G.*
Pinus Thunbergi	Japanese Black Pine	2	40-50			*T.* An excellent tree for sea-shore planting. Branches spreading and somewhat pendulous. Foliage bright green, 3 to 4 inches long. *A. D. G.*
Pinus Thunbergi var. oculus-draconis	Sun-ray Pine	2	10-15			*T.* A variety of the preceding with foliage partly yellow. Particularly

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						attractive for winter effects, when it is good among evergreens of darker color. *A. E. G.*
Pinus montana var. mughus	Swiss Mountain Pine	2	8			*T.* Variable in habit, but usually of a dense, low spreading growth. Excellent for massing on hill-sides also with, or in front of, taller evergreens. Foliage bright green, about 2 inches long. *A. E. G.*
Pinus ponderosa	Bull Pine	2	50			*T.* Open spreading branches, which are somewhat pendulous. Foliage dark green, sometimes more than 6 inches long. Hardy only in sheltered places. *B. D. G.*
Pinus Peuce		2	40-50			*T.* Branches short and ascending, forming a narrow, dense, pyramidal tree. Leaves blue-green, generally twisted. A rare and very ornamental pine. *A. E. G.*
Pinus resinosa	Red Pine	2	50-60			*T.* A native pine with red bark and spreading, somewhat pendulous branches. Foliage dark green, 4 to 5 inches long. A very hardy ornamental pine. *A. D. G.*

Pinus rigida	Pitch Pine	2	30			*T.* Irregular and horizontally spreading branches. Foliage yellow-green, stiff and spreading. A useful pine for sea-shore planting or on dry knolls. Excellent for picturesque effects. *A. E. G.*
Pinus strobus	White Pine	2	50-75			*T.* Very picturesque when old, and well adapted for large grounds. Branches horizontal, in regular whorls. Foliage blue-green, 2 to 3 inches long, sweet-scented. *A. D. G.*
Pinus strobus var. brevifolia	Dwarf White Pine	2	3			*S.* Compact and round in growth. Foliage short, light green. A rare, attractive, small evergreen. *A. E. G.*
Pinus sylvestris	Scotch Pine	2	40-50			*T.* Spreading in growth. Foliage blue-green, 1½ to 3 inches long, rigid and twisted. Excellent for shelter planting. Adapted also to poorer soils. *A. D. G.*
Platanus occidentalis	Buttonwood Sycamore or Plane Tree	1	50-60			*T.* A beautiful majestic tree in summer with its large head of bright green heart-shaped foliage. Attractive also in winter with its smooth creamy-white bark mottled by dark blotches of older bark, which peels off in thin plates. Good for large lawns or street planting. Good for moist soils and for sea-side planting. *A. D. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Platanus orientalis	Oriental Plane	1	50-60			*T.* In habit much as the preceding, but with larger, deeper green leaves. *A. D. G.*
Platycodon grandiflorum	Balloon Flower	4	2	Deep blue	July to Oct.	Numerous bell-shaped flowers on erect stalks. Bushy in habit and a very showy perennial. Flowers resemble somewhat the Canterbury Bells. *A. G. I.*
Platycodon grandiflorum var. album	White Balloon Flower	4	2	White	July to Oct.	A variety of the preceding with flowers 1 to 2 inches across. *A. G. I.*
Platycodon grandiflorum var. Mariesi		4	1	Various	July to Oct.	A dwarfer form of the Platycodon, with large flowers, in colors of blue, white and lavender. *A. G. I.*
Platycodon grandiflora var. semi-plenum	Semi-double Balloon Flower	4	2	Deep blue	July to Oct.	A free-flowering, showy perennial with semi-double flowers produced on erect stems. An excellent border plant. *A. G. I.*
Podophyllum peltatum	Mandrake or May Apple	4	1½	White	May	Leaves deep green, deeply divided. Fruit yellow, about the size of a plum. Good in the bog or wild-garden. *A. F.*
Polemonium cæruleum	Jacob's Ladder	4	1½	Deep purple	May & June	A good border plant with clusters of bell-shaped flowers, and handsome divided foliage. *A. G.*

Polemonium cæruleum var. album		4	1½	White	May & June	A white-flowered variety of the preceding. *A. G.*
Polemonium reptans	Greek Valerian	4	8 in.	Light blue	April & May	Showy flowers in loose panicles. Good for the rockery. *A. G.*
Polemonium reptans var. Himalayanum		4	8 in.	Purple-magenta	May & June	Fern-like foliage with loose panicles of flowers about 1 inch across. Good for the border or rockery. *A. G.*
Polemonium humile		4	6 in.	Light blue	June	Low and spreading, with attractive divided foliage and showy clusters of bell-shaped flowers. Good in the border or rock-garden. *A. G.*
Polyanthus	*See Primula*					
Polygonatum giganteum	Solomon's Seal	4	4	Green-white	May & June	Good for the wild-garden. Flowers tubular, pendulous and borne on gracefully arching stems. *A. F.*
Polygonatum multiflorum		4	2	Green-white	May & June	Common in old gardens and particularly good in somewhat moist ground. Foliage light green, flowers tubular, resembling the Lily-of-the-Valley. *A. F. I.*
Polygonum amplexicaule or P. multiflorum	Knot Weed or Joint Weed	4	2	Rose	Sept. & Oct.	A good border plant with foliage which has a tufted habit of growth, and showy flowers in spikes. *A. G. I.*
Polygonum Baldschuanicum		3	20	Rose	September	A pretty climbing vine with numerous small flowers in drooping panicles. Good for small trellises. *B. C. D. G.*

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Polygonum Sieboldi	Tall Knot Weed	4	6	White	Aug. & Sept.	Vigorous and shrubby in growth; effective among shrubs or in the wild-garden. Leaves heart-shaped. Flowers drooping, in large clusters. *A. G. F.*
Polygonum sachalinense	Sacaline	4	8	Green-white	Aug. & Sept.	The most vigorous growing of the Polygonums, and very effective among shrubs. Leaves sometimes more than a foot long, soft dull green. Flowers in clusters. *A. D. F.*
Polypodium vulgare	Polypody	2				Excellent for rock-gardens.
Populus alba	White Poplar	1	40			*T.* Irregular and very spreading in growth. Should be used with care, for when once established it spreads rapidly and is difficult to eradicate. Leaves large, heart-shaped, woolly white underneath. Good for shelter belts, and effective against a background of evergreens or other trees with dark foliage. *A. D. G.*
Populus alba var. Bolleana	Bolles' Poplar	1	30-40			*T.* A tall, narrow-topped tree. Leaves deeply lobed, woolly white underneath. Good for tall screens. *A. D. G.*

Populus balsamifera	Balsam Poplar	1	30-40			*T.* A rapidly growing dark-leaved tree with resinous, sweet-scented buds in spring. Good for shelter planting. *A. D. G.*
Populus balsamifera var. candicans	Balm of Gilead	1	30-40			*T.* Much like preceding, but with a broader head. *A. D. G.*
Populus deltoides or monolifera	Cottonwood	1	40-50			*T.* Spreading and rapid in growth. Leaves large, dark and glossy. Good for screens or sea-shore planting. *A. D. G.*
Populus deltoides var. Carolinensis	Carolina Poplar	1	40-50			*T.* Much like preceding. *A. D. G.*
Populus deltoides var. Van Geertii	Golden-leaved Poplar	1	20-30			*T.* A variety with bright yellow leaves in the spring. Good for color contrast. *A. D. G.*
Populus grandidentata	Large-toothed Aspen	1	40-50			*T.* Erect and open in growth; foliage silvery; good for winter bark effects. *A. D. G.*
Populus nigra var. italica	Lombardy Poplar	1	40-50			*T.* Pyramidal and narrow in growth. Used extensively for screens and quick effects. It is not a long-lived tree, but when large it is very picturesque. *A. D. G.*
Populus tremula var. pendula	Weeping Poplar	1	10-15			*T.* A form of the European Poplar with slender, drooping branches, forming a parasol-shaped head. The leaves are white-green, oval, about

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						3 inches long, on long, slender, flattened leaf-stalks. These give an interesting, restless motion to the foliage. Good for large lawns and particularly against a dark background. *A. D. G.*
Populus tremuloides	American Aspen	1	40-50			*T.* Much like the Populus grandidentata, but with smaller leaves and more active foliage. *A. D. G.*
Potentilla fruticosa	Shrubby Cinquefoil	1	3	Bright yellow		*S.* A good dwarf shrub with dense, narrow, gray-green foliage with numerous single flowers throughout the summer. Particularly good for swamps and rocky places. *A. F.*
Potentilla hybrida	Hybrid Potentilla	4	6-8 in.	Various	June & Aug.	Excellent plants for the rockery. Trailing in habit. Foliage resembles that of the strawberry. Flowers single or semi-double, in colors of crimson, orange, yellow and white. *B. C. H.*
Primula auricula	Auricula	4	6-8 in.	Deep red	April & May	Flowers in clusters, sometimes white or purple. Foliage coarse, dense. Good for the border or rock-garden where protection can be given in winter. *B. C. H.*

Primula officinalis	English Cowslip	4	6-8 in.	Deep yellow	April & May	Somewhat coarser in growth than the preceding. *B. C. H.*
Primula Polyantha	Polyanthus	4	6-8 in.	Various		The earliest of the Primroses to bloom. Flowers in loose clusters, large and very fragrant. Good under trees, particularly on sheltered hill-sides, or in the rock-garden. *B. C. H. I.*
Primula Sieboldi	Siebold's Primrose	4	8-10 in.	Purple	April & May	The largest and showiest of the Primroses. Individual flowers sometimes 1½ inches across, in loose clusters. Good under trees, and particularly so on sheltered hill-sides, or in the rock-garden. *B. C. H. I.*
Primula vulgaris	Common Primrose or Polyantha	4	6-8 in.	Pale yellow	April & May	Single flowers about 1 inch across, on soft, hairy stems. Foliage tufted and pretty. Good in the wild-garden or naturalized under trees. All primroses should be shaded from midday sun and given considerable winter protection. *B. C. H.*
Prunus cerasifera var. atropurpurea or Prunus Pissardi	Purple-leaved Plum	1	8-10	Pink	May	*S.* A small tree or shrub, which retains its color well through the summer. It is open in growth, and much like the English Plum. It is most effective among tall shrubs for color contrast. *A. G. D.*

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Prunus japonica var. alba plena	Double White Almond	1	5	White	May	*S.* Very attractive in the spring when it is covered with showy, double, rose-like flowers. Good for the shrubbery border. *A. D. G.*
Prunus japonica var. rosea plena	Double Pink Almond	1	5	Rose	May	*S.* In habit like the preceding. *A. D. G.*
Prunus maritima	Beach Plum	1	4-5	White	April	*S.* A good shrub for sea-shore planting or for sandy or gravelly banks. Flowers in umbels, preceding the foliage, which is a dull green. Fruit purple, about the size of a cherry, edible. *A. G.*
Prunus Persica var. alba pleno or Persica vulgaris	Double White Peach	1	4-5	White	May	*T.* A form of the common Peach with numerous double flowers. Very ornamental while in bloom, and good if planted among coarse growing shrubs. *B. C. D. G.*
Prunus Persica var. rosea pleno	Double Rose-colored Peach	1	4-5	Rose	May	
Prunus Persica var. foliis purpurea	Purple-leaved Peach	1	4-5	Pink	May	A variety of the common Peach with blood-red foliage in the spring. Flowers single, deep pink. Effective among coarse shrubs. *B. C. D. G.*

Prunus pumila	Sand Cherry	1	4-5	White	May	*S.* A native shrub with racemes of showy flowers along the slender branches. Excellent for sea-shore planting or on sandy banks. Fruit purple-black, showy; not edible. *A. E. G.*
Prunus tomentosa	Japanese Cherry	1	6-7	Rose	May	*S.* Coarser and more upright in growth than P. japonica. Flowers double, sometimes 1½ inches across, and very showy. Foliage dark green, hairy. A good shrub for the border. *A. D. G.*
Prunus triloba	Flowering Plum	1	5-6	Rose	May	*S.* Upright in growth, with slender branches, completely covered with double flowers; individual flowers 1 inch across. Good among tall shrubs. This variety as well as the preceding is generally grafted on Plum or common Peach stock, and in planting care should be taken to set the plant deeply enough so that the grafted part is at least 6 inches below the surface of the ground. *A. D. G.*
Pseudolarix Kæmpferi	Golden Larch	2	30-40			*T.* Pyramidal, dense in growth; foliage about 2 inches long, and brilliant yellow in early spring. Good among tall evergreens. *A. D. F.*
Pseudotsuga Douglasii	Douglas's Spruce	2	40-50			*T.* Pyramidal in growth with horizontal branches. Foliage soft dark

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						green or with a bluish tint. A native of the Rocky Mountains, and attractive among other tall evergreens. *A. D. G.*
Ptelea trifoliata	Hop Tree	1	8-10			*S.* A small tree or shrub, good for massing with coarse shrubbery. Its leaves are trifoliate and glossy green. It is most attractive in late summer or autumn, when large clusters of hop-like fruits are produced. *A. D. F.*
Ptelea trifoliata var. aurea	Golden Hop Tree	1	8-10			*S.* A variety of the preceding with bright golden foliage, which does not fade, but holds its brilliant color until frost. *A. D. F.*
Pteridium aguilinum or Pteris aquilina	Brake or Bracken	4	4			A coarse native fern with dull green, somewhat leathery foliage. Good in clumps, under trees or among rocks. *A. G.*
Pterocarya fraxinifolia		1	30-40			*T.* Spreading in growth; foliage dark green; decorated in late summer with long, drooping racemes of light green fruits or nuts. *A. D. G.*
Pterocarya rhoifolia		1	30-40			*T.* Much like the preceding, but with larger fruits. *A. D. G.*
Pueraria Thunbergiana	Kudzu Vine	2 & 3	40	Purple	August	A remarkably fast growing vine; one useful for covering arbors and veran-

						das. Flowers pea-shaped; foliage large, light green. In the northern states the plant dies to the ground in winter, but when well established, it will grow from 30 to 40 feet in a season. *B. C. H.*
Pulmonaria officinalis	Lung-wort	4	8 in.	Purple-rose	May	Good for the wild-garden. Coarse foliage in tufts, with showy flowers in upright clusters. *A. G.*
Pyracantha coccinea	Evergeeen Thorn	2	4	Pink		*S.* Orange-scarlet berries in winter. Foliage dense, round, dark and glossy. Good with low evergreens. *B. C. E. G.*
Pyrus angustifolia	Bechtel's Double-flowering Crab	1	10-15	Pink	May	*T.* A beautiful tree while in bloom. The flowers are fragrant and double, resembling miniature roses, and are borne in great quantity. The foliage of the tree is dull green and unattractive. Good among coarse shrubbery. *A. G.*
Pyrus baccata	Siberian Crab	1	15-20	White	May	*T.* A very pretty, small, spreading tree, with clusters of pink-white, drooping flowers. Foliage glossy green. The fruit is yellow or red, about ¾ inch in diameter, very showy and produced in great abundance. Good among coarse shrubs or in shelter-belts. *A. D. G.*
Pyrus coronaria	Wild Crab-apple	1	15-20	Pink	May	*T.* Resembles the preceding, but has somewhat larger, bright yellow fruit. *A. D. G.*

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Pyrus floribunda	Flowering Crab	1	10-15	Rose	May	*S.* More shrubby in growth than P. coronaria. It is very free-flowering. Fruit bright red, the size of a pea, and borne on long, slender stalks. Very ornamental; good among coarse shrubs. *A. D. G.*
Pyrus floribunda var. atrosanguinea		1	10-15	Deep rose	May	*S.* A variety of the preceding with beautiful deep rose-colored flowers. *A. D. G.*
Pyrus Halliana	Hall's Flowering Crab	1	10-12	Carmine	May	*S.* A pretty, small tree or shrub, with glossy, leathery foliage, and semi-double, carmine flowers in long-stemmed clusters. *A. E. G.*
Quercus alba	White Oak	1	60-80			*T.* A native tree with spreading branches, forming a broad, open head. The foliage assumes a beautiful red-purple color in the fall. Excellent for parks or large lawns where ample space can be allowed for its full development. *A. E. G.*
Quercus bicolor	Swamp White Oak	1	50			*T.* Resembles the preceding, but is less spreading in growth. Bark shaggy, like the shagbark hickory; twigs coarse and tough. *A. E. G.*

Quercus coccinea	Scarlet Oak	1	50-75			*T.* Most valuable for its brilliant scarlet fall coloring. Leaves deeply divided, bright green and glossy. Rather narrow and open in growth. *A. E. G.*
Quercus macrocarpa	Mossy-cupped Oak	1	60-80			*T.* A spreading tree with leaves 6 to 8 inches long, light green above and whitish beneath. The bark on the young branches is corky and ridged. *A. E. G.*
Quercus palustris	Pin Oak	1	40-60			*T.* A most attractive species; upper branches at right angles to the trunk, lower branches somewhat drooping, forming a symmetrical, pyramidal head. Leaves deeply pinnatifid with lobes at right angles to mid-rib, glossy green in color. They turn a beautiful crimson in the autumn. Excellent for avenue planting. *A. D. F.*
Quercus phellos	Willow-leaved Oak	1	30-40			*T.* Conical in growth, with slender branches. Leaves bright green and glossy. They are about 4 inches long and quite narrow, resembling closely those of the Willow. *A. D. G.*
Quercus prinus	Chestnut Oak	1	50-75			*T.* Branches spreading and irregular. Leaves resemble somewhat those of the common Chestnut. They are 5 to 8 inches long. A good tree for parks or large lawns. *A. E. G.*

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Quercus pedunculata	English Oak	1	40-50			*T.* A vigorous, round-headed species, with dark green, glossy foliage.
Quercus pedunculata var. concordia	Golden English Oak	1	20-30			*T.* Leaves 3 to 4 inches long and quite narrow. Excellent for color contrasts. *C. E. G.*
Quercus pedunculata var. pendula	Weeping English Oak	1	15-20			*T.* A very graceful tree with spreading, drooping branches, and deep green, glossy foliage. *A. E. G.*
Quercus pedunculata var. fastigiata	Pyramidal Oak	1	20-30			*T.* In habit of growth much like the Lombardy Poplar. Branches upright, forming a narrow columnar head. Leaves glossy green. *C. D. G.*
Quercus rubra	Red Oak	1	50-75			*T.* A native tree with spreading branches, forming a symmetrical head. Leaves deeply lobed, dull green, from 5 to 8 inches long. It sheds its foliage in early winter, unlike most other varieties of Oaks. Valued for park and avenue planting. *A. D. G.*
Ranunculus aconitifolius var. flore-pleno	Double White Buttercup	4	1	White	June	Deep green, palmate foliage, and rosette-like flowers on slender stems. A good plant for the border. *A. F. I.*

Ranunculus acris var. flore-pleno	Bachelor's Button	4	1	Golden-yellow	June to Sept.	Foliage deep green and divided; flowers abundant, showy and double. Excellent for the rockery. *A. F. I.*
Ranunculus repens var. flore-pleno	Creeping Buttercup	4	8 in.	Golden-yellow	June & Aug.	Deep green, divided foliage, with showy, double flowers produced in abundance. Excellent for the rockery. *A. F. I.*
Rhamnus cathartica	Buckthorn	1	6-10			*S.* A good hedge-plant with dull green foliage; wood black and thorny, with clusters of shiny black berries in autumn and early winter. *A. D. G.*
Rhamnus dahurica or R. crenata	Laurel-leaved Buckthorn	1	6-8			*S.* Spreading in growth. Leaves about 4 inches long, glossy. Berries black, in showy clusters. An ornamental, useful shrub. *A. D. G.*
Rhamnus caroliniana	Indian Cherry	1	8-10			*S.* Open in growth. Bark blue-green, spotted with white. Leaves about 4 inches long, narrow, light green. Fruit red-black. *A. D. G.*
Rheum officinale	Ornamental Rhubarb	4	4	White	July	Leaves heart-shaped, sometimes 3 feet broad. Flowers in spikes, showy. Good near shrubbery or in the hardy border. *A. G.*
Rhexia virginica	Meadow Beauty	4	8-10	Rose-purple	July to Sept.	A tuberous rooted, low-growing plant with showy spikes of bell-shaped flowers. Good for the bog-garden. *A. F. I.*

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Rhododendron catawbiense		2	6-8	Lilac-purple	June	*S.* A beautiful shrub with glossy green leaves from 3 to 4 inches long; flowers about 1½ inches across in large clusters. This and its numerous hybrid varieties are especially effective as single specimens on the lawn or when massed in large groups. If planted near dark foliaged evergreens, their flowers produce a beautiful contrast. Rhododendrons transplant best in the spring, and thrive best in a place sheltered against dry winds and from the burning sun. They prefer a soil made with peat or leaf mold and sandy loam. It is well to apply an occasional top-dressing of two or three inches of well-decayed stable manure. In the fall the ground should be covered with leaves, pine-needles or hay to protect from frost. After flowering the young seed-vessels should be carefully removed, and in dry seasons a liberal application of water should be given. The following varieties are the most hardy and satisfactory: Album elegans, blush, changing to white; Atrosanguineum, blood-red; Blandianum, rose-crimson; Boule de Neige, pure white; Caractacus, purple-crimson;

						Charles Dickens, dark scarlet; Delicatissimum, blush or white, edged with pink; Everestianum, rose-lilac, spotted red; Gen. Grant, pink-crimson; Giganteum, bright rose; Gloriosum, white; H. H. Hunnewell, rich crimson; H. W. Sargent, crimson; Lady Armstrong, pale rose; Lady Clermont, deep red; Mrs. Milner, crimson; Parson's Gloriosum, pale lavender; Roseum elegans, vivid rose.
Rhododendron ferrugineum	Alpine Rose	4	2	Carmine	July	*S.* A dwarf, compact shrub with dull green leaves about 1½ inches long, and showy clusters of flowers. Good for bordering beds of hybrid Rhododendrons or for the rockery. *A. F.*
Rhododendron hirsutum		4	2	Deep red	July	*S.* In habit like the preceding. Leaves dull green and rough. *A. F.*
Rhododendron punctatum		4	3-4	Pale rose	July	*S.* Spreading in growth, with slender, recurving branches. Leaves dull green, about 2½ inches long. Flowers in clusters, individual flowers about 1 inch across. Good among hybrid Rhododendrons or Mountain Laurel. *B. C. E. F.*
Rhododendron maximum	Giant Bay or Great Laurel	4	8-10	Rose	June & July	*S.* Spreading in growth. Leaves dull green, 4 to 6 inches long. Flowers about 1½ inches across, in dense clusters. Very hardy and used extensively in park planting. Effec-

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						tive in masses along streams or against a background of coniferous evergreens. *A. F.*
Rhodotypos kerrioides	White Kerria	1	4-5	White	May & June	*S.* A very ornamental shrub with bright foliage and single white flowers about 1½ inches across. These are produced at the end of the branchlets and are followed by conspicuous, shining black fruits in autumn and winter. *A. D. G.*
Rhus canadensis or aromatica	Fragrant Sumach	1	3-4	Yellow	May	*S.* Spreading in growth. Leaves trifoliate, aromatic. Flowers small, in clusters, and come before the leaves appear. Excellent for covering dry, sandy banks or for massing with other shrubs. *A. D. G.*
Rhus copallina	Shining Sumach	1	4-5	Yellow-green	July & Aug.	*S.* Valued for its glossy, deep green foliage, which turns a rich crimson in the autumn. Useful in masses and succeeds well in dry soils. *A. D. G.*
Rhus cotinus	Purple Fringe or Smoketree	1	8-10	Yellow-green	June	*S.* Good as a single specimen for lawns or in masses with tall shrubs. Flowers in loose panicles on long pedicels which become purple and plumose and give the plant a smoky appearance in late summer and early fall. *A. C. E. G.*

Rhus glabra	Smooth Sumach	1	15			*S.* Good for mass planting where a tall, coarse growth is desired. Leaflets about 6 inches long, narrow and light green. Fruits in large, showy crimson clusters in the autumn. *A. D. G.*
Rhus glabra var. laciniata	Dwarf Cut-leaved Sumach	1	3-4			*S.* A most ornamental shrub with leaflets deeply cut and fern-like. In autumn it turns a beautiful crimson. *A. E. G.*
Rhus semialata var. Osbeckii	Osbeck's Sumach	1	8-10	White	July	*S.* Generally narrow and upright in growth with leaves sometimes 2 feet long; leaf-stalks winged between the leaflets. Flowers in showy, terminal panicles in late summer. *B. C. D. G.*
Rhus typhina	Stag-horn Sumach	1	10-15			*S.* Similar to R. glabra, but with velvety hairy bark. *A. D. G.*
Rhus typhina var. laciniata	Cut-leaved Stag-horn Sumach	1	8-10			*S.* A variety of the preceding with deeply cut, fern-like leaflets. It colors a rich crimson in autumn and is excellent for massing or when grown as a single specimen. *A. D. G.*
Ribes alpinum	Mountain Currant	1	3	Yellow	May	*S.* A dense, upright growing shrub with a deep green foliage and numerous fragrant flowers. It is undoubtedly the best of the flowering Currants. It is most useful in dry soils where few other shrubs will succeed. *A. E. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Ribes aureum	Missouri Currant	1	6	Yellow	May	*S.* Open in growth. Foliage glossy. Flowers fragrant, succeeded by dark brown fruit. Good for the shrubbery border. *A. D. G.*
Ribes americanum	Wild Black Currant	1	6	Yellow-white	May	*S.* Branches spreading. Foliage dull green. Flowers showy, followed by large black fruits. *A. D. G.*
Ribes Gordonianum		1	6	Purple-rose	May	*S.* Flowers large, followed by blue-black fruit; leaves deep green, 2 to 3 inches across. A useful, attractive shrub. *A. D. G.*
Ribes sanguineum	Red-flowered Currant	1	6	Purple-red	May	*S.* Branches red and smooth; leaves broad and dark green; flowers produced freely, followed by blue-black fruit. *A. D. G.*
Ribes sanguineum var. flore-pleno	Double-flowered Currant	1	5-6	Purple-red	May	A variety of the preceding with showy double flowers. *B. C. D. G.*
Robinia hispida	Rose Acacia	1	4-6	Rose	May & June	*S.* A pretty, low shrub with hairy branches and leaves, with showy flowers in loose clusters. It spreads from the roots like the raspberry, and should not be planted where it

						will interfere with other shrubs. Good in masses or on dry banks. *A. D. G.*
Robinia pseudacacia	Black Locust	1	20-30	Yellow-white	June	*T.* An attractive tree while in bloom. Flowers fragrant, in long racemes. Good among other trees in shelter belts. *A. D. G.*
Robinia pseudacacia var. aurea	Golden Locust	1	10-15			*T.* Small tree or shrub with bright yellow foliage. Good among coarse shrubs for color contrast. *A. D. G.*
Robinia pseudacacia var. inermis	Thornless Locust	1	10-15	Yellow-white	June	*T.* Resembles the type closely, but is free from thorns. *A. D. G.*
Robinia pseudacacia var. Decaisneana		1	20	Rose	June	*T.* Flowers in large racemes, fragrant. Leaves dense, deep green. *A. D. G.*
Rosa alba		1	6	Blush or white	June	*S.* Flowers semi-double, fragrant. *A. D. G.*
Rosa carolina	Swamp Rose	1	6	Pink	July & August	*S.* Upright in growth. Flowers about 2 inches across, fragrant, single. *A. D. F.*
Rosa lucida		1	3-4	Pink	May & June	*S.* A low spreading shrub with shining dark foliage; flowers like those of the preceding. Fruits red, ornamental in winter. *A. D. G.*
Rosa lucida var. alba		1	3-4	White	May & June	*S.* A variety of the preceding with bright yellow-green stems with single flowers about 2 inches across. *A. D. G.*

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Rosa multiflora	Japanese Rose	1 & 3	4-6	White	June	*S.* Single flowers about 1 inch across, in showy clusters. Branches spreading and recurving. One of the most useful of the single-flowered Roses. Inclined to climb. *A. D. G.*
Rosa nitida		1	6	Pink	June	*S.* A low, upright shrub with branches covered with numerous bristles. Foliage shining green; the single flowers are almost 1½ inches across. *A. D. G.*
Rosa pendulina or alpina	Alpine Rose	1	3	Pink	May & June	*S.* Flowers single, about 2 inches across. Shrubby in growth and good for borders of shrubbery or for covering slopes. *A. D. G.*
Rosa virginiana or blanda		1	3	Pink	May & June	*S.* An almost thornless variety with an abundance of pretty, single flowers. It is shrubby in growth and, like the following varieties, is excellent for massing with shrubbery or for covering slopes. *A. D. G.*
Rosa wichuraiana	Memorial Rose	1		White	July & Sept.	A half evergreen shrub with prostrate, creeping branches and glossy green foliage. Flowers single, about 2 inches across, in clusters. Good for

						covering banks and rockeries. A number of hybrids are cultivated; the following are the best. *A. D. G.*
Rosa wichuraiana var. Manda's Triumph		1		White	July & Sept.	*S.* Fragrant, double flowers in clusters. *A. D. G.*
Rosa wichuraiana var. Evergreen Gem		1		Light yellow	July & Sept.	*S.* A very free bloomer, with double fragrant flowers. *A. D. G.*
Rosa wichuraiana var. Gardenia		1		Cream color	July & Sept.	*S.* Single flowers, bright yellow while in bud, becoming creamy with age. A vigorous grower. *A. D. G.*
Rosa wichuraiana var. Jersey Beauty		1		Pale yellow	July & Sept.	*S.* Single flowers with bright yellow stamens. *A. D. G.*
Rosa wichuraiana var. Pink Roamer		1		Deep pink	July & Sept.	*S.* Single flowers in large clusters. Very fragrant. *A. D. G.*
Rosa wichuraiana var. South Orange Perfection		1		Blush	July & Sept.	*S.* Flowers double, changing to white. *A. D. G.*
Rosa wichuraiana var. Universal Favorite		1		Soft pink	July & Sept.	*S.* Very free in growth, with double, fragrant flowers in showy clusters. *A. D. G.*
Moss Roses						Moss Roses require a rich soil, and are attractive either in masses with shrubbery, or as a background for Hybrid Perpetual Roses in the rose garden. They should be pruned severely each year, and kept low, but

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						as the blooms are produced on the wood of the previous year's growth, pruning must not be done until immediately after flowering. Following are named a few of the best fragrant, double varieties.
—Blanche Moreau		1	3-4	Pure white	June	
—Capt. John Ingram		1	3-4	Purple-crimson	June	
—Common Moss		1	3-4	Pale rose	June	
—Comtesse de Murinais		1	3-4	Blush rose	June	
—Crested Moss		1	3-4	Deep pink	June	
—Gracilis		1	3-4	Blush pink	June	
—Henry Martin		1	3-4	Rose-red	June	
—Princess Adelaide		1	3-4	Pale rose	June	
—Perpetual White		1	3-4	Pure white	June	
—Salet		1	3-4	Light rose	June	

—White Bath		1	3-4	Blush	June	
—White Moss		1	3-4	Pure white	June	
Rosa rugosa	Single Japanese Rose	1	6	Red	May to Sept.	*S.* Upright hardy shrub with stout stems, densely beset with bristles. Leaves dark green, rugose. Flowers single, sometimes more than 2 inches across, very showy. Fruit brick red, sometimes 1 inch across, very ornamental. The Rosa rugosa and its following named hybrids are among the most desirable shrubs. *A. D. G.*
Rosa rugosa var. alba	Single White Japanese Rose	1	5-6	White	May & Sept.	*S.* Excellent for cut flowers; flowers freely throughout season.
Rosa rugosa var. Blanc de Coubert		1	4-5	White	June	*S.* Flowers semi-double, fragrant.
Rosa rugosa var. Conradi Ferdinand Meyer		1	4-5	Silver-rose	June	*S.* Double, fragrant flowers, particularly beautiful while in bud.
Rosa rugosa var. Anthony Waterer		1	4-5	Crimson	June	*S.* Semi-double and very fragrant.
Rosa rugosa var. Mme. George Bruant		1	4-5	White	All summer	*S.* Flowers semi-double and very fragrant.
Rosa rugosa var. Nova Zembla		1	4-5	White	June	*S.* Flowers semi-double and fragrant.

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Rosa rugosa var. prostrata	Trailing Japanese Rose	1	1	Pink	June	A vigorous growing, trailing variety with single, deep pink, showy flowers. Good for the rock-garden or for covering slopes. *A. D. G.*
Rosa rugosa var. Rosarie de L'Hay		1	4-5	Cherry	June	A very free flowerer, with large double, fragrant flowers.
Rosa rubiginosa	Sweet Briar	1	6	Pink	June	*S.* A dense growing shrub, with showy, single flowers about 1½ inches across. The young foliage exhales an agreeable aromatic odor. The following named are hybrids of the Sweet Briar: Amy Robsart, deep red; Flora McIvor, rose-white; Lady Penzance, copper-yellow; Lord Penzance, fawn, with yellow centre; Lucy Bertram, deep crimson; Meg Merrilies, crimson; Anne of Gierstein, dark crimson; Brenda, blush; Lucy Ashton, white edged pink; Bradwardine, clear rose.
Rosa setigera	Prairie Rose	1	5-6	Deep rose	June & July	*S.* A beautiful shrub with slender, recurving branches; flowers 1½ inches across, in many clusters. Excellent on banks, near water or in the shrubbery border. *A. D. G.*

Rosa setigera var. tomentosa	Red-leaved Rose	1	4-5	Pink	July	*S.* Open in growth and with red-purple leaves. Flowers single, about 1½ inches across. *A. E. G.*
Rosa spinosissima	Scotch Rose	1	3-4	Various	June	*S.* Spreading and recurving branches densely beset with slender bristles. Foliage dark and glossy. Flowers single, in fragrant clusters. *A. E. F.*
Rosa spinosissima var. altaica or grandiflora		1	4-5	White	June	*S.* More vigorous than the type, with single flowers sometimes 3 inches across. *A. D. F.*
Climbing or Rambler Roses (In this group are included varieties of Perpetual Briars, Multiflora and Polyantha Roses.)						Climbing Roses are useful for covering trellises, arbors, walls and similar places. They succeed best in a deep, rich soil. They should be pruned severely immediately after flowering to induce a strong growth and to guard against mildew, to which they are subject, particularly if they are exposed to the hot sun. Frequent applications of Bordeaux mixture or dustings with sulphur should be given to keep mildew and other diseases in check. Following are named a few of the best hardy varieties.
—**Anna Maria**		1 & 3	10-12	Blush	June & July	An old garden favorite with clusters of very sweet-scented, double flowers. *A. G.*
—Baltimore Belle	Baltimore Belle Rose	1 & 3	10-15	White	June & July	Small double flowers in clusters.

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—Carmine Pillar	Carmine Pillar Rose	1 & 3	10-12	Rose-carmine	June	Delicate single flowers and good foliage. Excellent for pillars, walls or arbors, but somewhat tender and requires protection in winter.
—Crimson Rambler	Crimson Rambler Rose	1 & 3	15-20	Crimson	June & July	A fast grower and profuse bloomer. Flowers in very large showy clusters. *A. D.*
—Dawson	Dawson Rose	1 & 3	10-15	Crimson	June	Single flowers in clusters.
—Debutante		1 & 3	10-15	Deep pink	June to Sept.	Foliage dark, glossy and almost evergreen. Flowers semi-double, in clusters. *A. D.*
—Dorothy Perkins	Dorothy Perkins Rose	1 & 3	15-20	Deep pink	June & July	Double flowers in large clusters. Foliage deep green, glossy. One of the best. *A. D.*
—Empress of China		1 & 3	8-10	Deep pink	July & Aug.	Excellent foliage and very sweet double flowers in clusters. *A. E.*
—Gem of the Prairie		1 & 3	10-15	Light crimson	June	Flowers in double, fragrant clusters. *A. D.*
—Lady Gay	Lady Gay Rose	1 & 3	15-20	Cherry-pink	June & July	Flowers double, in loose clusters. Foliage glossy, dark green. One of the best. *A. D.*

—Pink Rambler	Pink Rambler Rose	1 & 3	10-15	Light pink	June & July	Double flowers about 1 inch across, in clusters. *A. D.*
—Queen of the Prairie	Climbing Prairie Rose	1 & 3	10-15	Rose-red	June	Large double, sweet-scented flowers in clusters. An old favorite. *A. D.*
—Psyche		1 & 3	10-15	White with salmon pink	June & July	Semi-double flowers in clusters. Foliage deep green and glossy. New and one of the best. *A. D.*
—Philadelphia Rambler	Philadelphia Climbing Rose	1 & 3	15-20	Crimson	June & July	Similar to the Crimson Rambler, but with somewhat larger flowers. *A. D.*
—Seven Sisters	Seven Sisters Rose	1	15-20	Deep red	June	Very sweet double flowers in large clusters. *A. D.*
—Sweetheart		1 & 3	10-15	Pink-white	June & July	Large, numerous clusters of double flowers. Foliage similar to that of R. Wichuraiana. New and one of the best. *A. D.*
—White Rambler	White Rambler Rose	1 & 3	10-15	White	June	Flowers semi-double and fragrant, in loose clusters. *A. D.*
—Yellow Rambler	Yellow Rambler Rose	1	10-15	Light yellow	June & July	A somewhat tender variety with large clusters of fragrant double flowers about 1½ inches across. *B. C. D.*
—Mme. Plantier	Mme. Plantier Rose	1 & 3	8-10	White	June	Flowers large, clustered. Very fragrant. Good for low trellises or for massing with shrubs. *A. D. G.*
—Climbing White Pet	White Pet Rose	1 & 3	10-12	White	July to Sept.	Double, small, fragrant flowers; foliage excellent. *B. C. D.*

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Baby Rambler Roses						The Baby Rambler Roses are dwarf and bushy in growth, and bloom continuously from June until frost. They are excellent for bordering beds of perennials or hybrid perpetual Roses. They should be set deeply when planted, and cut back to within 3 to 4 inches of the ground in the spring.
—Anna Muller	Pink Baby Rambler	1	1½	Light pink	All summer	Double flowers about 2 inches across, in numerous clusters. *B. C.*
—Baby Dorothy	Baby Dorothy Rose	1	1½	Deep pink	All summer	Similar to the preceding and equally good. *B. C.*
—Norbert Levavasseur	Crimson Baby Rambler	1	1½	Crimson	All summer	Small, double flowers in clusters, completely covering the plant. *B. C.*
—Novæ Angliæ	New England Baby Rambler	1	1½	Pure white	All summer	Flowers double, fragrant, in loose clusters. A new and valuable variety.
Austrian Briers or Yellow Bush Roses						The Austrian Roses are very hardy, and are good in masses among shrubs or as a background for beds of hybrid perpetual Roses. They should be pruned closely each year in order to be kept low and bushy; but as the

						flowers are produced on the wood of the previous season's growth, pruning must not be done until after flowering.
—Copper	Austrian Copper Rose	1	3-4	Orange-scarlet	June	Semi-double flowers borne in great profusion. *A. G.*
—Harrisoni	Harrison's Yellow Rose	1	3-4	Deep yellow	June	Flowers about 2 inches across, semi-double. A very free bloomer. *A. G.*
—Persian Yellow	Persian Yellow Rose	1	3-4	Bright yellow	June	A very free bloomer, with double flowers about 2 inches across. *A. G.*
Hybrid Perpetual Roses						The hybrid perpetual Roses can be grown successfully in any warm, sunny spot, sheltered from strong winds, if the soil is a deep, rich loam. A clayey soil is preferable, and as the Rose is a gross feeder, an occasional top-dressing of well rotted manure is beneficial. It is very important in planting to set Roses deeply. It is safe to say that ordinary young plants, such as generally are sent out by nurserymen, should be set so deeply that one-third of the top is buried. After planting, the top should be cut off to within 3 or 4 inches of the ground. If the ground is dry, a liberal application of water should be given. The plants should not be allowed to grow coarse and tall, but each year in the early spring they should be cut back to within 6

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						or 8 inches of the ground. Plants set sufficiently deep do not winter-kill. It is well to apply a heavy mulch of leaves or strawy manure late in the fall when the growth is well ripened. In very dry seasons, an occasional thorough watering should be given, but watering should never be done on warm or sunny days. For mildew on roses apply dry sulphur. For Red Spider and Rose-bugs see chapter on "Spraying" and "Injurious Insects." Following is a list of the best and hardiest varieties. Those marked *X* are the most constant flowering.
—Abel Carriere		1		Velvety-maroon	June to Nov.	
—Alfred Colomb		1		Carmine-red	June to Nov.	*X*.
—American Beauty		1		Deep rose	June to Nov.	
—Anna de Diesbach		1		Deep pink	June to Nov.	
—Annie Wood		1		Deep red	June to Nov.	
—Baroness Rothschild		1		Bright pink	June to Nov.	

—Baronne de Maynard	1		White	June to Nov.
—Beauty of Waltham	1		Light crimson	June to Nov.
—Baron de Bonstetten	1		Rose-crimson	June to Nov.
—Boule de Niege	1		White	June to Nov.
—Caroline de Sansal	1		Flesh color	June to Nov.
—Charles Lefebvre	1		Velvety-crimson	June to Nov.
—Charles Margottin	1		Deep red	June to Nov.
—Camille Bernardin	1		Bright red edged pink	June to Nov.
—Capt. Christy	1		Delicate flesh-colored	June to Nov.
—Charles Darwin	1		Light crimson	June to Nov.
—Countess of Oxford	1		Carmine	June to Nov.
—Countess of Roseberry	1		Red-salmon	June to Nov.

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—Coquette des Blanche		1		Light pink	June to Nov.	*X.* A hybrid Noisette Rose.
—Coquette des Alps		1		White shaded with pink	June to Nov.	*X.* Also a Noisette.
—Clio		1		Rosy-pink	June to Nov.	
—Docteur Andre		1		Brilliant red	June to Nov.	
—Duchess of Bedford		1		Fiery crimson	June to Nov.	
—Duke of Albany		1		Vivid crimson	June to Nov.	
—Duke of Edinburgh		1		Vermilion	June to Nov.	
—Duke of Connaught		1		Dark crimson	June to Nov.	
—Duke of Tech		1		Crimson-scarlet	June to Nov.	
—Dupuy Jamain		1		Light cerise	June to Nov.	
—Earl of Dufferin		1		Dark maroon	June to Nov.	*X.*

—Eclair		1		Fiery red	June to Nov.	
—Emily Laxton		1		Cherry-rose	June to Nov.	
—Empress of India		1		Dark crimson	June to Nov.	
—Etienne Leavet		1		Carmine	June to Nov.	
—Eugenie Verdier		1		Light pink	June to Nov.	
—Ferdinand de Lesseps		1		Bright red	June to Nov.	
—Fisher Holmes		1		Brilliant crimson	June to Nov.	
—Francois Levet		1		Cherry-red	June to Nov.	
—Frau Karl Druschky		1		Pure white	June to Nov.	*X.*
—General Jacqueminot		1		Brilliant crimson	June to Nov.	
—Gloire Lyonnaise		1		White tinted with yellow	June to Nov.	
—Gloire de Margottin		1		Brilliant scarlet	June to Nov.	
—Gruss an Teplitz		1		Velvety crimson	June to Nov.	*X.*

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—Gustave Piganeau		1		Carmine	June to Nov.	
—Glory of Cheshunt		1		Deep red	June to Nov.	
—Hippolite Jamain		1		Rose-carmine	June to Nov.	
—Jean Liabaud		1		Scarlet-crimson	June to Nov.	
—Jeannie Dickson		1		Rose-pink	June to Nov.	
—John Hopper		1		Rose-crimson	June to Nov.	*X.*
—Jules Margottin		1		Cherry-red	June to Nov.	
—Lady Helen Stewart		1		Crimson-scarlet	June to Nov.	
—Leopold Premier		1		Rich crimson	June to Nov.	
—La Rosiere		1		Velvety crimson	June to Nov.	
—Louis van Houtte		1		Fiery red	June to Nov.	

—Mabel Morrison		1		Pure white	June to Nov.	
—Madame Chas. Wood		1		Rose-crimson	June to Nov.	
—Mme. Gabriel Luizet		1		Bright pink	June to Nov.	
—Magna Charta		1		Deep pink	June to Nov.	
—Mme. Victor Verdier		1		Carmine	June to Nov.	
—Marchioness of Dufferin		1		Rose-pink	June to Nov.	
—Marchioness of Lorne		1		Rose-carmine	June to Nov.	
—Marchioness of Londonderry		1		Ivory-white	June to Nov.	
—Marchioness of Exeter		1		Clear rose	June to Nov.	
—Margaret Dickson		1		Pale pink	June to Nov.	
—Margaret de St. Amand		1		Bright rose	June to Nov.	
—Marie Baumann		1		Brilliant crimson	June to Nov.	
—Marie Rady		1		Vermilion shaded to crimson	June to Nov.	

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—Marshall P. Wilder		1		Carmine shaded to maroon	June to Nov.	
—Merveille de Lyon		1		Pink-white	June to Nov.	
—Mrs. John Laing		1		Soft pink	June to Nov.	*X.*
—Mrs. R. G. Sharman Crawford		1		Deep pink	June to Nov.	
—Paul Neyron		1		Deep pink	June to Nov.	*X.*
—Perle des Blanches		1		Pure white	June to Nov.	
—Pierre Notting		1		Deep maroon	June to Nov.	
—Pride of Waltham		1		Salmon-pink	June to Nov.	
—Prince Camille de Rohan		1		Velvety crimson	June to Nov.	
—Pius IX		1		Rose-carmine	June to Nov.	
—Prof. Koch		1		Velvety crimson	June to Nov.	

—Queen of Queens		1		Carmine	June to Nov.	
—Rev. J. B. M. Camm		1		Carmine-rose	June to Nov.	
—Reynolds Hole		1		Rich maroon	June to Nov.	
—Senateur Vaisse		1		Fiery red	June to Nov.	
—Soleil d'Or		1		Deep orange-yellow	June to Nov.	
—Ulrich Brunner		1		Fiery red	June to Nov.	
—Victor Verdier		1		Rose-carmine	June to Nov.	
—Vick's Caprice		1		Pink striped with carmine	June to Nov.	
—White Baroness		1		Pure white	June to Nov.	
—Xavier Olibo		1		Deep scarlet	June to Nov.	
Bourbon Polyantha and Hybrid Tea Roses		1				The following varieties are the freest and most continuous flowering of all Roses. They are valued because of their dwarf, bushy habit of growth and delightful fragrance. They are comparatively tender, but can be safely wintered if covered carefully

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						with earth around the crowns after cold weather sets in, and if the wood is well ripened. After covering with earth, apply leaves or litter to the depth of 6 to 8 inches. When the ground thaws in the spring, remove all covering and cut back the branches to within 3 or 4 inches of the ground. In planting set the plants deeply in the ground and have the soil well drained, rich and deeply spaded. Use decomposed animal manure for all roses.
—Agrippina		1		Velvety crimson	All summer	
—Appoline		1		Rose-pink	All summer	
—Bon Silene		1		Rose-crimson	All summer	
—Bride		1		Pure white	All summer	
—Bridesmaid		1		Rich pink	All summer	
—Catharine Mermet		1		Flesh color	All summer	
—Cecil Brunner		1		Salmon-pink	All summer	

—Clothilde Soupert		1		Pearl-white	All summer	
—Duchess of Albany		1		Rose-red	All summer	
—Francisca Kruger		1		Rose-yellow	All summer	
—Golden Gate		1		Cream-white	All summer	
—Gloire de Dijon		1		Rose and salmon	All summer	
—Hermosa		1		Bright rose	All summer	
—Kaiserin A. Victoria		1		Cream-white	All summer	
—Killarney		1		Pale pink	All summer	
—La France		1		Pale pink	All summer	
—La Reine		1		Bright rose	All summer	
—Marie Lambart		1		Pure white	All summer	
—Mme. Lombard		1		Rose-carmine	All summer	
—Marie van Houtte		1		Pale yellow tinted with rose	All summer	
—Marie Guillot		1		Pure white	All summer	

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—Madame Hoste		1		Cream-white	All summer	
—Madame de Watteville		1		Bright rose	All summer	
—Meteor		1		Velvety crimson	All summer	
—Madame Cecil Brunner		1		Pale pink	All summer	
—Maman Cochet		1		Deep pink shaded to yellow	All summer	
—Madame Caroline Testout		1		Rose-pink	All summer	
—Marion Dingee		1		Deep crimson	All summer	
—Mignonette		1		Clear pink	All summer	
—Mosella		1		Rose-yellow	All summer	
—Papa Gontier		1		Deep red	All summer	

—Perle des Jardins		1		Golden-yellow	All summer	
—Pink Soupert		1		Bright pink	All summer	
—Safrano		1		Apricot yellow	All summer	
—Souv. de Malmaison		1		Deep pink	All summer	
—Sunset		1		Amber shaded to crimson	All summer	
—Souv. du President Carnot		1		Delicate rose	All summer	
Rubus laciniatus	Cut-leaved Bramble	1	3	White	June	*S.* A straggling bush with glossy, deeply cut, fern-like foliage. Good among rocks, or for side-hill planting. *A. D. G.*
Rubus odoratus	Flowering Raspberry	1	4-5	Rose-purple	All summer	*S.* Good for covering dry, sandy slopes. Leaves very large, light green and hairy. Flowers sweet-scented, in showy clusters, produced freely throughout the summer. *A. D. G.*
Rudbeckia fulgida	Black-eyed Susan	4	1-2	Orange with black centre	Aug. to Oct.	Good for the wild-garden or hardy border. Flowers daisy-like, about 3 inches across, showy. *A. G. I.*

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Rudbeckia laciniata	Cut-leaved Rudbeckia	4		Lemon-yellow	July to Aug.	Large daisy-like flowerheads with recurved ray flowers. Good for the wild-garden or border. *A. G. I.*
Rudbeckia laciniata var. flore-pleno	Golden Glow	4	5-6	Golden-yellow	July to Sept.	Effective as a background for other perennials. Flowers resemble large Chrysanthemums, and are produced in great abundance. Very showy. Transplant often. It is frequently planted too abundantly, so that its use cheapens the effect sought. It mildews badly in wet seasons. *A. F. I.*
Rudbeckia maxima	Large Cone-flower	4	5-6	Deep yellow	Aug. & Sept.	Flower-clusters 5 to 6 inches across with dark cone-shaped centres and drooping ray flowers. Good in the hardy border or among shrubs. *B. C. H. I.*
Rudbeckia speciosa		4	3	Orange-yellow with black centres	Aug. & Sept.	Resembles R. fulgida, but with larger flowers. A good border plant. *A. G. I.*
Rudbeckia subtomentosa		4	4	Lemon-yellow	Aug. to Oct.	Large daisy-shaped flowers with dull brown centres. Very free flowering; a good plant for the border. *A. G. I.*

Ruta graveolens	Rue	1	2-3	Yellow-green	July	Foliage light green and prettily divided. Flowers fragrant, in small panicles. Pretty in the rockery or wild-garden. *B. C. H.*
Salix alba	White Willow	1	30-40			*T.* A spreading, rapidly growing tree with yellow-brown bark and long, ashy-gray, silky leaves. Good for wet places and beautiful near water. *A. D. F.*
Salix babylonica	Babylonian Willow	1	30-40			*T.* Branches olive-green, slender and drooping. Pretty as a single specimen to contrast with upright trees, and particularly attractive near water. *B. C. D. F.*
Salix babylonica var. aurea	Golden-barked Weeping Willow	1	30-40			*T.* A form of the preceding with bright yellow bark.
Salix babylonica var. dolorosa	Wisconsin Weeping Willow	1	30-40			*T.* In habit like S. babylonica, but more hardy. *A. D. F.*
Salix babylonica var. Salamoni		1	30-40			*T.* Somewhat similar to S. babylonica, but hardier; branches not quite so pendulous. *A. D. F.*
Salix elegantissima	Thurlow's Willow	1	30-40			*T.* A spreading tree with long, pendent branches and yellow-green bark. Very attractive near water. *A. D. F.*

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Salix caprea var. pendula	Kilmarnock Willow	1	8-9			*T.* Generally grafted on stems about 6 feet high. Branches spreading and drooping, forming an umbrella-shaped head. Usually a short-lived tree. *A. F.*
Salix pentandra	Glass or Laurel-leaved Willow	1	20-30			*T.* Upright and spreading in growth, with chestnut-colored bark and large, shining, dark green foliage. Good for screens and quick effects. *A. D. G.*
Salix purpurea var. pendula	New American Weeping Willow	1	8-10			*T.* In habit like the Kilmarnock Willow, but with more slender, drooping branches and narrow, gray leaves. *A. F.*
Salix incana or rosmarinifolia	Rosemary Willow	1	8-10			*T.* A small, round-topped tree with upright branches. Leaves narrow, about 3 inches long, green above and gray-white beneath. Generally grafted on stems about 5 feet high. Good as single specimens on lawns. *A. G.*
Salix sericea	Silky Willow	1	6-8			*S.* Branches spreading and pendulous. Foliage narrow, blue-gray. Good for massing near water. *A. D. F.*

Salix vitellina var. aurea	Golden-barked Willow	1	30-40			*T.* An upright, spreading tree with golden-yellow bark and narrow, silky, hairy leaves. Good for shelter planting or near water. *A. D. F.*
Salix vitellina var. Britzensis	Red-barked Willow	1	20-30			*T.* In growth like the preceding, but with yellow-red bark. *A. D. F.*
Salvia argentea	Silver-leaved Sage	4	2	White	June & July	Leaves large, sometimes 8 inches long, lying flat on the ground. They are silvery white and woolly. Flowers in spikes, tubular. Good for the rock-garden. *A. H.*
Salvia azurea var. grandiflora	Blue Sage	4	2-3	Light blue	Aug. & Sept.	A good border plant with downy leaves; flowers in showy spikes. *B. C. H.*
Salvia officinalis	Sage	4	2	Violet-blue	June & July	Generally grown as a kitchen herb, but rather attractive while in bloom. Flowers in whorls; leaves gray and downy. *A. G.*
Salvia pratensis	Meadow Sage	4	2-3	Deep violet	June & July	Flowers in large spikes, very showy. Foliage coarse and downy. A good border plant. *A. G. I.*
Salvia pratensis var. alba	White Meadow Sage	4	2-3	Green-white	June & July	A form of the preceding with white flowers in showy spikes. *A. G. I.*
Sambucus nigra var. aurea	Golden-leaved Elder	1	6-8	White	July	*S.* A variety of the European Elder, with large, bright yellow foliage. Flowers in large, flat, showy clusters. Good planted among other shrubs.

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						It is best in the full sunlight, where it attains its brightest color. Inclined to become discolored in the late summer and fall. *A. D. G.*
Sambucus nigra var. laciniata	Cut-leaved Elder	1	4-6	White	June	*S.* A variety of the European Elder with deep green foliage, variously cut and incised. *A. E. F.*
Sambucus nigra var. variegata	Variegated Elder	1	4-6	White	June	*S.* A variety with leaves variegated with yellow and white. *A. E. F.*
Sambucus pubens	Red-berried Elder	1	5-7	White	May	*S.* Similar to S. racemosa. *A. D. F.*
Sambucus racemosa	Red-berried Elder	1	5-7	White	May	*S.* A pyramidal shrub, with large, deep green foliage, and showy red fruit in the autumn. Good among other coarse shrubs, particularly in moist soil. *A. D. F.*
Sambucus racemosa var. laciniata		1	5-6	White	May	A variety of the preceding with deeply-cut foliage. *A. E. F.*
Sanguinaria canadensis	Bloodroot	4	8 in.	White	April & May	A showy, early flowering, native perennial with star-shaped flowers about 2 inches across; leaves large, light green. Good in masses, under trees and shrubs, or in the rockery. *A. G.*

Santolina chamæcyparissus	Lavender Cotton	2	2	Bright yellow	July & Aug.	*S.* A pretty dwarf shrub with small flowers in racemes, and aromatic, glaucous evergreen foliage. Good if massed in front of shrubbery, in the perennial border or for edging beds of coarse flowers. *A. E. G.*
Saponaria officinalis var. flore-pleno	Bouncing Bet	4	1½	Light pink	July & Aug.	A spreading perennial with showy clusters of double flowers. Common in old gardens. Good in clumps with dwarf shrubs and for massing on hill-sides or in dry and sandy places. *A. G. I.*
Saponaria ocymoides	Soap-wort	4	1	Pale pink	May to Aug.	Resembles the preceding, but more trailing in habit. *A. G. I.*
Sarracenia Drummondii	Pitcher Plant	4	2-3	Red-brown	June	An interesting bog or swamp plant with large odd-shaped flowers and pitcher-like leaves. Good in the wild-garden. *A. F.*
Sarracenia purpurea		4	1	Deep purple	June	Resembles the above, but dwarfer in growth. *A. F.*
Sarracenia flava		4	2	Yellow-green	June	Attractive for bog garden. *A. F.*
Sassafras officinale	Sassafras	1	20-25	Yellow	May	*T.* An open, round-headed tree with large, rough, three-lobed leaves; flowers small and fragrant in dense clusters; fruit red with blue calyx. Valued for its aromatic bark and roots. In the landscape it is valued

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						for the brown-green winter coloring of the twigs and for the brilliant orange and red fall coloring of the foliage. Grows best in full sunlight. *A. D. F.*
Saxifraga cordifolia	Saxifraga	4	1	Lilac	April & May	Foliage heart-shaped, deep green. Flowers in showy panicles. Effective in the border or rockery. *A. G.*
Saxifraga crassifolia		4	1	Deep pink	April & May	Similar to the preceding. *A. G.*
Scabiosa caucasica	Cushion Flower	4	1	Light blue	June & July	A very free-flowering perennial with semi-double, daisy-like flowers about 2½ inches across. A good border plant. *B. C. H. I.*
Scabiosa caucasica var. alba	White Cushion Flower	4	1	White	June & July	Flowers produced in great abundance. *B. C. H. I.*
Schizophragma hydrangeoides	Climbing Hydrangea	1 & 3		Pink-white	August	*S.* A climbing shrub or vine, useful for covering walls or tree trunks. It clings firmly by means of aerial rootlets. Leaves large and deep green. Flowers in loose flat clusters. *C. E. G.*
Sciadopitys verticillata	Umbrella Pine	2	15-20			*T.* Compact and conical in growth. Long, slender, blunt leaves in whorls;

						color dark green, glossy; individual leaf about 3 inches long. A rare, attractive tree. Good for lawn planting. *B. C. E. G.*
Scilla sibirica	Squill	4	4-6 in.	Deep blue	April & May	An attractive, low, bulbous plant with drooping, bell-shaped flowers in small spikes. Good in clumps under shrubs, among perennials or in the rockery. Plant bulbs in the fall, setting about 3 inches deep in sandy loam. *A. G.*
Scilla sibirica var. alba	White Squill	4	4-6 in.	White	April & May	Similar to the preceding species.
Sedum acre	Yellow Stonecrop	2	4 in.	Bright yellow	May	A creeping plant with coarse, moss-like foliage and single flowers about ⅓ inch across, which literally cover the plant. Good in crevices of rocks or for carpeting dry, sandy places. *A. G.*
Sedum aizoon	Aizoon Stonecrop	4	1	Yellow	June & Aug.	Star-shaped flowers in flat clusters. Leaves pulpy and coarse. Good for the rock-garden. *A. G.*
Sedum album	White Stonecrop	2	4-6 in.	White	July & Aug.	Pale green and moss-like foliage. Star-shaped flowers in clusters completely covering the plant. Good for covering dry, sandy spots or for the rock garden. *A. G.*

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Sedum Ewersii	Ewer's Stonecrop	2	6-8 in.	Purple-pink	Sept. & Oct.	A good plant for the rockery. Flowers in showy clusters. Leaves broad and glaucous. Trailing in growth. *A. G.*
Sedum Kamtschaticum	Orange Stonecrop	2	6-9 in.	Orange-yellow	July & Aug.	Flat clusters of star-shaped flowers. Foliage pulpy, evergreen. Good for the rockery. *A. G.*
Sedum maximum var. atropurpureum	Purple-leaved Stonecrop	4	2	Deep pink	Sept. & Oct.	Leaves pulpy, broad, deep red. Effective in the border or rock-garden. Flowers in loose clusters. *A. G.*
Sedum Middendorffianum	Middendorf's Stonecrop	4	6 in.	Deep yellow	June & July	Creeping in growth and good for the rockery. Flat clusters of star-shaped flowers. *A. G.*
Sedum sexangulare		2	4-6 in.	Bright yellow	June & July	Resembles Sedum acre. Good for the rockery. *A. G.*
Sedum Sieboldii	Siebold's Sedum	2	6-8 in.	Red-purple		Leaves glaucous and edged with pink. Flowers in showy clusters. Spreading in growth and a most beautiful plant. Good for the border or rockery. *A. G.*
Sedum spectabile	Showy Sedum	4	1-2	Deep rose	Aug. & Sept.	Showy flowers in large, broad clusters. Foliage gray and pulpy. One of the best late-flowering perennials. Good for the hardy border. *A. G. I.*

Sedum stoloniferum	Trailing Stonecrop	2	6 in.	Purple-pink	July to Aug.	An attractive trailing variety with numerous flowers in good sized clusters. Excellent for the rock-garden. *A. G.*
Sedum telephium var. purpureum	Purple-leaved Live-forever	4	1½	Deep pink	July & Aug.	Deep purple, pulpy foliage. Flowers in large, showy clusters. Excellent for the hardy border or rockery. *A. G. I.*
Sempervivum arachnoideum	House-leek	2	3-6 in.	Pink	July	The House-leeks are grown more for their cactus-like rosettes of foliage than for their flowers. They can be grown in the smallest crevices of rocks or on moss-covered tree trunks. They can also be used to advantage in edging carpet beds, and are always attractive. *A. G.*
Sempervivum arvernense		4	6-8 in.	Pale pink	July	*A. G.*
Sempervivum boutignianum		4	6-8 in.	Rose	July	Tops of leaves in rosettes edged with white. *A. G.*
Sempervivum calcareum		2	8-10 in.	Pale rose	June	Leaves tipped with red. *A. G.*
Sempervivum fimbriatum		4	6-8 in.	Bright red	July	*A. G.*
Sempervivum Pittonii		4	6-8 in.	Red-yellow	June	*A. G.*

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Sempervivum Ruthenicum		4	6-8 in.	Pale yellow	July	*A. G.*
Sempervivum tectorum	Irish House-leek	4	8-10 in.	Rose-pink	June	*A. G.*
Seneceo pulcher	Groundsel	4	2-3	Rose-purple	July & Aug.	Leaves arrow-shaped, gray-green. Flowers in large rays. Good for the rock-garden. *B. C. H.*
Shepherdia argentea	Buffalo Berry	4	3-4	Yellow	June	*S.* A low, dense growing shrub with gray or silvery foliage, and clusters of small flowers along the stems. Fruit red-yellow, about the size of a pea, produced in abundance. Good for sandy banks or seashore planting. *A. G.*
Silene maritima var. flore-pleno	Double Seaside Catchfly	4	6-8 in.	White	June & July	A pretty trailing plant which is very effective in the rockery. Foliage glaucous; flowers double, about ¾ of an inch across. *A. G.*
Silene virginica	Fire-pink	4	1-2	Bright crimson	June & July	Pretty in the border or rock-garden. Foliage grass-like; flowers in loose clusters, which are about 2 inches across. *A. G. I.*
Silene pennsylvanica	Wild-pink	4	6-9 in.	Bright pink	April & May	Resembles the preceding, but dwarfer in growth; flowers smaller. *A. G. I.*

Silphium laciniatum	Compass-plant	4	6	Bright yellow	July to Sept.	Good among shrubbery, in the wild-garden or back of the perennial border. Foliage deep green, about 1 foot long, once or twice pinnately parted. Flowers resemble sun-flowers. *B. C. H. I.*
Silphium perfoliatum	Indian Cup-plant	4	6	Bright yellow	July to Sept.	Foliage coarse and uninteresting, but flowers extremely showy, resembling sun-flowers. *A. G. I.*
Silphium trifoliatum	Rosinweed	4	6	Bright yellow	July to Sept.	Resembles the preceding. *A. G. I.*
Silphium terebinthinaceum	Prairie Dock	4	6-7	Bright yellow	Aug. to Sept.	Much like the last named, but a more profuse bloomer. *A. G. I.*
Sisyrinchium grandiflorum	Blue-eyed Grass	4	1	Rich purple	May & June	Foliage grass-like; the flowers resemble small Irises. Good in masses in the border or rock garden. *A. F.*
Solidago sempervirens	Golden Rod	4	3	Golden-yellow	July to Oct.	Coarse, leathery foliage, and large heads or spikes of flowers often more than a foot long. Good in clumps with Asters, among shrubbery or in the wild-garden. *A. G. I.*
Solidago rigida	Golden Rod	4	3	Golden-yellow	July to Oct.	The showiest and best of the Golden-rods. Very hardy and good among shrubs or in sandy places.
Sophora japonica	Japanese Pagoda-tree	1	15-20	Yellow-white	July	*T.* A dense, round-headed tree with dark green, glossy foliage; flowers

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						pea-shaped in loose panicles. A pretty dwarf tree for the lawn. *B. C. E. G.*
Sophora japonica var. pendula	Weeping Sophora	1	10	Yellow-white	July & Aug.	*T.* Generally grafted on stems about 6 feet high. Branches long, slender and very pendulous. A rare but pretty lawn tree. *B. C. D. G.*
Sorbus arbutifolia or Pyrus arbutifolia	Chokeberry	1	6-8	White	May	*S.* Upright and dense in growth; particularly beautiful in autumn, when its foliage turns a vivid crimson and when it is covered with showy red fruit. An excellent shrub for border planting. *A. D. G.*
Sorbus americana or Pyrus americana	American Mountain Ash	1	20-30			*T.* Open in growth with spreading branches. Foliage light green, rough. Fruit bright red, in showy clusters. A very attractive, small tree and one particularly good if planted among tall evergreens. *A. D. G.*
Sorbus aucuparia or Pyrus aucuparia	European Mountain Ash	1	20-30			*T.* A pretty, round-headed, small tree, resembling the preceding. Clusters of fruit very large and showy. *A. D. G.*

Sorbus aucuparia var. pendula or Pyrus sorbus var. pendula	Weeping Mountain Ash	1	15			*T.* Branches slender and pendulous. One of the most pronounced weeping trees, with branches bending to the ground. Its clusters of fruit are very showy, and, as a whole, it is a most attractive tree for lawn planting. *A. D. G.*
Sorbus Aria or Pyrus sorbus var. Aria	White Beam-tree	1	25-30			*T.* Pyramidal in growth, with coarse, rough leaves, dark green above and silvery white beneath. Showy, orange-red fruit in large clusters. *A. E. G.*
Sorbus Aria var. aurea	Golden Mountain Ash	1	15-20			*T.* A small tree, pyramidal in growth, with brilliant golden leaves. Excellent against a dark background for color effect. *A. E. G.*
Sorbus hybrida var. quercifolia or Pyrus sorbus var. quercifolia	Oak-leaved Mountain Ash	1	30			*T.* Pyramidal in growth with upright branches. Leaves deeply-lobed, hairy, resembling oak leaves. Fruit brilliant red in showy clusters. *A. D. G.*
Spigelia marilandica	Pink-root	4	1-2	Red and yellow	June & July	A fine plant for the hardy border. Does well in shade.
Spiræa						Many species formerly classed as Spiræas are now included in Astilbe, Aruncus, Ulmaria and Physocarpus, which see.

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Spiræa arguta		1	6	White	May	*S.* A most useful, beautiful shrub. Foliage dense, light green. Flowers in many-flowered clusters along the drooping slender branches, giving the shrub the appearance of a bank of snow. *A. D. G.*
Spiræa Billardii	Billard's Spiræa	1	5-6	Bright pink	July & Aug.	*S.* Upright in habit, with red-brown branches, dull green foliage and dense spikes of flowers about 6 inches long. Good for hill-sides and dry places. *A. D. G.*
Spiræa Blumei	Blume's Spiræa	1	4	White	June	*S.* A spreading shrub with arching branches and showy flowers in large umbels. Foliage dull green. *A. D. G.*
Spiræa Bumalda		1	2-3	Light pink	July & Aug.	*S.* A compact, low-growing shrub with good, dense foliage, which is sometimes variegated with pink and white while young. Flowers in showy flat clusters borne on erect stems. Excellent in masses in front of taller shrubs. If the flowers are cut when they fade, the shrub will continue to bloom until frost. *A. G.*

Spiræa Bumalda var. Anthony Waterer	Anthony Waterer's Spiræa	1	2-3	Bright crimson	July & Aug.	*S.* A form of the preceding with an abundance of showy crimson flowers. One of the most useful low shrubs. *A. G.*
Spiræa cantoniensis	Reeve's Spiræa	1	4	Bright crimson	July & Aug.	*S.* Resembles somewhat Spiræa Van Houttei, but with coarser, more erect branches. Excellent for the shrubbery border. *A. G.*
Spiræa chamædryfolia		1	4	White	June	*S.* Small, narrow, blue-green leaves. A dense, much branched shrub, with an abundance of pretty, flat clusters of flowers about 1½ inches across. Useful in the shrubbery border. *A. E. G.*
Spiræa Douglassi		1	6-8	Deep pink	July	*S.* Resembles S. Billardii, but taller in growth. Young branches red-brown, and flowers in dense, broad panicles and 6 to 8 inches long. Good for dry places and hill-sides. *A. D. G.*
Spiræa japonica var. Fortunei	Fortune's Spiræa	1	4	Deep pink	June to Sept.	*S.* A beautiful shrub with upright branches and deep green foliage, which is bright red when young. Flowers in large flat clusters. Attractive in masses. *A. D. G.*
Spiræa japonica var. callosa		1	3-4	Light pink	June to Sept.	*S.* Upright in growth, with dull green leaves and flat clusters of flowers produced on erect branches. A low shrub good for massing. *A. G.*

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Spiræa japonica var. callosa alba		1	2	White	June to Sept.	*S.* Smaller than the preceding and a profuse bloomer. *A. G.*
Spiræa lævigata	Siberian Spiræa	1	3-4	Green-white	May	*S.* A dense, upright growing shrub with blue-green, coarse foliage about 3 inches long. Flowers in showy panicles about 4 inches long. Good for massing in sandy places. *A. G.*
Spiræa bracteata	Round-leaved Spiræa	1	6	White	June	*S.* Foliage round and dark green. Branches spreading and drooping. Flowers in large, flat showy clusters. A very attractive and useful shrub. *A. D. G.*
Spiræa prunifolia	Plum-leaved Spiræa	1	6	White	May	*S.* Flowers about $\frac{1}{4}$ of an inch across in dense racemes along the slender upright branches. A pretty shrub with dark green, shining foliage, but not satisfactorily hardy. *B. C. D. G*
Spiræa prunifolia var. flore-pleno		1	6	White	May	*S.* Flowers somewhat larger and more double than those of the preceding. *B. C. D. G.*
Spiræa salicifolia	Willow-leaved Spiræa	1	6	Pink	June & July	*S.* Good for dry spots or on hill-sides. Erect in growth. Foliage dull green; flowers in narrow panicles about 6 inches long. *A. D. G.*

Spiræa Thunbergii	Thunberg's Spiræa	1	4	White	April & May	*S.* Spreading in growth with arching, slender branches and light green, dense foliage. Flowers in long, close racemes on the branches. One of the earliest to flower and retains its fine, delicate foliage late in the fall. A most useful low growing shrub. *A. D. G.*
Spiræa Van Houttei	Van Houtte's Spiræa or Bridal-wreath	1	6	White	May & June	One of the most handsome and useful of the hardy shrubs. The best of this group. Flowers in flat clusters about 1½ inches across, produced on spreading, arching branches. Foliage dense, deep green. *A. D. G.*
Stachys Betonica	Wood Betony	4	1½	Red-purple	June & July	Good for the wild-garden. Leaves round, deep green. Flowers in showy spikes about 4 to 6 inches long. *A. F.*
Stachys lanata	Woolly Wound-wort	4	1½	Purple	June & July	Foliage gray and tufted, woolly. Flowers in thick spikes about 6 or 8 inches long. A good border plant. *A. G. I.*
Stachys grandiflora	Large-flowered Betony	4	2	Violet	June & July	Showy flowers in large whorls. Leaves broad, heart-shaped. A pretty border plant. *A. G. I.*
Staphylea colchica	Bladder-nut	1	6-7	White	May & June	*S.* An upright shrub, particularly attractive in the fall, when it is covered with masses of large, silvery, capsuled fruit. Good among coarse shrubs. *B. C. D. H.*

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Staphylea trifolia	American Bladder-nut	1	6-7	White	May & June	*S.* Very hardy. Especially attractive when in bloom and when in fruit in the fall.
Statice latifolia	Sea Lavender	4	2	Blue-purple	July to Sept.	Beautiful tiny flowers in large spreading sprays. Foliage dark green and leathery. One of the best perennials for cutting, also good in the border or rock-garden. *A. G. I.*
Statice Limonium or maritima	Marsh Rosemary	4	2	Deep blue	July & Aug.	Similar to the preceding, but with flowers in more open sprays; flowers sometimes pink. *A. G. I.*
Stellaria holostea	Star-wort	4	4-6 in.	White	May to June	Flowers numerous, small and star-shaped. Foliage small, tufted. Good for the rockery or for covering ground where grass cannot be grown. *A. G.*
Stenanthium occidentale or robustum	Mountain Fleece	4	2	White	July & Aug.	Sword-like foliage, light green, resembling that of the Jap. Iris. Flowers bell-shaped, in open spikes about 1 foot long. Good in deep pockets of earth in the rockery. *B. C. I.*
Stephanandra flexuosa		1	3-4	White	July	*S.* A beautiful low shrub with very ornamental, deep green, dense foliage. Branches spreading and drooping. Flowers insignificant, in small

						terminal panicles. In exposed places it kills to the ground in winter, but regains its growth quickly in the spring. *B. C. D. G.*
Stipa pennata	Feather-grass	4	1½	Green	July & Aug.	Tall, grass-like plants with feathery plumes of flowers. Good in clumps in the border or on sandy banks. Very ornamental and useful for making dry bouquets. *B. C. H. I.*
Stokesia cyanea	Stokes' Aster	4	1½	Light blue	All summer	Aster-like flowers about 3 inches across. Foliage coarse and rough. An excellent border plant. *B. C. I.*
Stokesia cyanea var. alba		4	1½	White	All summer	A variety of the above with flowers 3 or 4 inches across, borne in great profusion until very late in the fall. *B. C. I.*
Stuartia pentagyna		1	6-8	White	July	*S.* A dense, pyramidal shrub with handsome bright green foliage which turns a brilliant orange-scarlet in autumn. Showy cup-shaped flowers 2 or 3 inches across. Good among coarse shrubs. *B. C. F.*
Styrax japonica		1	8-15	White	July	*S.* A small tree or shrub with dull green, rough foliage and spreading branches. Flowers bell-shaped, pendulous, hanging along the branches. Good occasionally among shrubs. *B. C. E. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Symphoricarpos racemosus	Snow Berry	1	4-6	Pink	July	*S.* An upright shrub, valued for its waxy, showy berries in autumn. Very effective in masses in the shrubbery border. *A. D. G.*
Symphoricarpos vulgaris	Indian Currant	1	4	Pink	July	*S.* A useful shrub for covering banks and dry spots. It is spreading in habit and its long, slender branches bend gracefully towards the ground. In autumn and winter it is covered with racemes of currant-like fruit. *A. D. G.*
Symphoricarpos vulgaris var. variegatus	Variegated-leaved Indian Currant	1	3-4	Pink	July	*S.* A variety of the preceding with leaves slightly variegated with white. *A. E. G.*
Symphytum officinale var.variegatum	Comfrey	4	3	Yellow	June & July	Leaves divided and margined with white; of easy culture in any soil.
Symplocus cratægoides		1	6-8	White	May	*S.* Foliage dull green, branches spreading; flowers bell-shaped, in small panicles. Valued for its ornamental amethyst-blue fruits in autumn. Plant among other shrubs. *A. E. G.*

Syringa japonica	Japanese Tree-lilac	1	20-30	White	June & July	*T.* A pyramidal tree with upright branches and large pale green leaves. Its panicles of flowers are often more than a foot long. It is rapid in growth, very hardy and useful in shelter belts, as well as for its ornamental character. *A. D. G.*
Syringa josikæa	Chionanthus-leaved Lilac	1	8-10	Violet	June	*S.* An upright shrub with stout branches and large, deep green, rough foliage. It is valued most for its late blooming season. *A. G.*
Syringa pekinensis		1	10-15	Yellow-white	June	*T.* A rapidly growing small tree or shrub with glossy dark foliage and slender, recurving branches. Flowers in large panicles at the ends of the branches. Good in shelter belts, among shrubs, in the border or as a single specimen on lawns. *A. D. G.*
Syringa persica	Persian Lilac	1	6-8	Pale lilac	May & June	*S.* A pretty variety with small leaves and rather small, loose panicles of flowers. Very pretty among other shrubs. *A. E. G.*
Syringa persica var. alba	White Persian Lilac	1	6-8	White	May & June	*S.* Similar in growth to the preceding. *A. E. G.*
Syringa persica var. laciniata	Cut-leaved Persian Lilac	1	5-6	Pale lilac	May & June	*S.* Dwarfer and slower in growth than the type. Leaves deeply cut. *A. E. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Syringa chinensis	Chinese Lilac	1	6-8	Red-purple	May	*S.* A very free-flowering variety, resembling S. persica, but more rapid in its growth; branches slender and slightly arching. Flowers very fragrant. *A. D. G.*
Syringa villosa		1	8-10	Pink-lilac	May& June	*S.* Branches upright and stout. Leaves broad, dull green. Flowers in narrow panicles. Valued for its late blooming season. *A. G.*
Syringa vulgaris	Common European Lilac	1	8-10	Purple	May	*S.* The most common of the lilacs. It is useful in masses of shrubbery and often used in making coarse hedges or screens. To keep the plant low and bushy they should be pruned severely each year, but pruning must be done immediately after the blooming season. *A. D. G.*
Syringa vulgaris var. alba	European White Lilac	1	8-10	White	May	*S.* A white-flowering form of the preceding. *A. D. G.*
Syringa vulgaris hybrids						A great many varieties of hybrid Lilacs are offered by nursery-men, and below are named a few of the best. They are generally more dwarf in growth than the common lilac, and as they are often grafted on common

						lilac or privet stock, care should be taken to set the plants very deeply when transplanting. Those marked with a *Y* have the largest and best blooms.
—Alphonse Lavalle		1	6-8	Light blue	May	Double.
—Belle de Nancy		1	6-8	Rose-lilac	May	Double.
—Charles X		1	6-8	Deep red	May	*Y.* Single
—Counseiller Heyder		1	6-8	Light blue	May	Single.
—Comte Horace de Choiseul		1	6-8	Red-violet	May	Double.
—Condorcet		1	6-8	Blue-white	May	Semi-double.
—Emile Lemoine		1	6-8	Rose-pink	May	*Y.* Double.
—Jean Bart		1	6-8	Deep rose	May	Double.
—Frau Bertha Dammann		1	6-8	White	May	*Y.* Single.
—Jacques Calot		1	6-8	Rose-pink	May	Single.
—Louis van Houtte		1	6-8	Bright red	May	Single.
—Ludwig Späth		1	6-8	Dark purple	May	*Y.* Single.
—La Tour d'Auvergne		1	6-8	Violet-purple	May	Double.

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
—Leon Simon		1	6-8	Blue-crimson	May	Double.
—Mad. Casimir-Perier		1	6-8	Cream-white	May	*Y.* Double.
—Mme. Lemoine		1	6-8	White	May	*Y.* Double.
—Mme. Moser		1	6-8	White	May	Single.
—Marie Legraye		1	6-8	White	May	*Y.* Single.
—Mathieu Dombasle		1	6-8	Red-purple	May	Double.
—Michel Buchner		1	6-8	Pale lilac	May	Double.
—Philemon		1	6-8	Dark lilac	May	Single.
—President Grevy		1	6-8	Rose-lilac	May	*Y.* Double.
—President Carnot		1	6-8	Pale lilac	May	Double.
—Pyramidal		1	6-8	Rose-lilac	May	Double.
—Senator Volland		1	6-8	Rose-lilac	May	Double.
—Virginite		1	6-8	Pure white	May	Double.
—Virginalis		1	6-8	Pure white	May	Single.

Tamarix parviflora	African Tamarisk	1	8-10	Pink	April & May	*S.* A pretty shrub with fine, feathery, light green foliage; flowers small, in close racemes. Upright in growth and beautiful in masses with tall shrubs. Excellent for seashore planting. *B. C. D. G.*
Tamarix gallica	Common Tamarisk	1	8-10	White or pink	April & May	*S.* Resembles the preceding, but with blue-green foliage and darker bark. *B. C. D. G.*
Tanacetum vulgare	Tansy	4	3-4	Bright yellow	July & Sept.	Foliage attractive, deep green and divided. Flowers in showy flat clusters, borne on erect stems. Good in masses near shrubs or in the wild-garden. *A. G.*
Taxodium distichum	Bald Cypress	1	20-30			*T.* A pretty pyramidal tree with upright branches; foliage resembling that of the Larch. Good among tall evergreens. *B. C. D. F.*
Taxus baccata	English Yew	2	10-15			*T.* Pyramidal in growth with spreading branches and light green foliage. It is not reliably hardy and will thrive only in very sheltered places. Resembles the native hemlock, but with darker green, heavier foliage. *B. C. F.*
Taxus baccata var. adpressa		2	6-8			*S.* Bushy and spreading in growth. Short, deep green foliage. Good in masses near taller evergreens. *B. C. F.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Taxus baccata var. argentea	Golden Yew	2	6-8			*S.* Brilliant yellow foliage. Irregular and bushy in habit of growth. Very effective with dark-leaved evergreens. *B. C. F.*
Taxus baccata var. fastigiata	Irish Yew	2	8-10			*T.* Columnar in growth. Foliage glossy, dark green. A beautiful small tree, but requires a very sheltered position. *B. C. F.*
Taxus canadensis	American Yew	2	3-4			*S.* A low spreading shrub with dark green foliage. Good on banks and under trees in low places. It has very ornamental crimson fruit in winter. *C. F.*
Taxus cuspidata	Japanese Yew	2	3-4			*S.* Spreading and irregular in growth. Foliage coarse and glossy green. The hardiest of the Taxus and excellent in masses against taller evergreens. *A. G.*
Tecoma radicans	Trumpet Vine	1 & 3	15-20	Orange-scarlet	July	A coarse climbing vine or shrub with large trumpet-shaped flowers in clusters, and dark green foliage. Good for covering large rocks or tree trunks to which it clings by rootlets. Good also on heavy trellises. *A. D. G.*

Tecoma grandiflora	Chinese Trumpet Vine	1 & 3	15-20	Deep scarlet	July	Flowers large and of a most beautiful deep scarlet color. It is less hardy than T. radicans and can be grown only in sheltered places. *B. C. D. G.*
Thalictrum aquilegifolium	Feathered Columbine	4	3	White	June & July	Foliage resembling that of the Columbine. Flowers feathery and in loose clusters. Pretty in the rock-garden. *A. G.*
Thalictrum polygamum	Tall Meadow-rue	4	3-5	White	July & Aug.	More robust than the preceding species; particularly good for wet places. *A. F.*
Thermopsis caroliniana		4	3	Bright yellow	June & July	Leaves clover-like; flowers pea-shaped, in racemes. Good for the wild-garden. *A. G.*
Thermopsis mollis		4	3	Sulphur-yellow	May to Aug.	An erect branching plant with showy flowers in spikes. Good in clumps with shrubs or for the border. *A. G.*
Thuya occidentalis	American Arbor Vitæ	2	15-20			*T.* The most common arbor vitæ, and used extensively in making dense screens and hedges. Its foliage is bright green above and yellowish underneath. Branches short and horizontal, forming a narrow, pyramidal tree. *A. D. G.*
Thuya occidentalis var. alba	Queen Victoria's Arbor Vitæ	2	10-15			*T.* Leaves variegated with white. *A. D. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Thuya occidentalis var. ericoides	Heath-leaved Arbor Vitæ	2	4-5			*S.* Dense and pyramidal in growth, with upright branches and bright, blue-green foliage. *A. G.*
Thuya occidentalis var. Ellwangeriana	Tom Thumb Arbor Vitæ	2	3-4			*S.* Low and dense in growth with the typical foliage of the arbor vitæ mixed with foliage which resembles that of Chamæcyparis pisifera var. squarrosa. *A. E. G.*
Thuya occidentalis var. lutea	Golden Arbor Vitæ or George Peabody's Golden Arbor Vitæ	2	10-15			*T.* A pyramidal form with bright golden foliage. Very hardy and useful. *A. D. G.*
Thuya occidentalis var. globosa	Globe Arbor Vitæ	2	2-3			*S.* A dwarf globose form with slender branches and bright green foliage. Very hardy. *A. E. G.*
Thuya occidentalis var. Hoveyi	Hovey's Arbor Vitæ	2	3-4			*S.* A dense globose form with upright branches and bright green foliage. A very handsome small shrub. *B. C. D. G.*
Thuya occidentalis var. pendula	Weeping Arbor Vitæ	2	8-10			*T.* A variety of the common arbor vitæ, with open, pendulous branches. *A. D. G.*

Thuya occidentalis var. pyramidalis	Pyramidal Arbor Vitæ	2	10-15			*T.* A very hardy, useful variety with light green foliage. Narrow and columnar in growth. *A. D. G.*
Thuya occidentalis var. Riversii	Rivers' Arbor Vitæ	2	10-15			Pyramidal in growth. Foliage coarse and light green. *A. D. G.*
Thuya occidentalis var. Wareana	Siberian Arbor Vitæ	2	10-15			*T.* In growth like the American arbor vitæ. Foliage heavy and blue-green. Excellent for hedges and screens. *A. D. G.*
Thuya occidentalis var. compacta		2	4-6			*S.* A globose form of the preceding. Very dense in growth.
Thuya occidentalis var. Vervæneana	Vervæne's Arbor Vitæ	2				*S.* Dwarf and dense in habit with slender branches and yellowish foliage. Very hardy and useful. *A. E. G.*
Thuya occidentalis var. Little Gem	Douglas' Little Gem	2	6 in.			*S.* Very dwarf in growth, and almost creeping. Foliage dark green. *A. E. G.*
Thuya orientalis	Oriental Biota	2	4-5			*S.* A pretty pyramidal or torch-shaped low tree or shrub with dense, flat, light green foliage which turns brown in winter. *B. C. E. G.*
Thuya orientalis var. aurea	Golden Biota	2	4-5			*S.* A variety of the preceding with foliage golden yellow in spring, changing to bright green. *B. C. E. G.*
Thuya orientalis var. elegantissima		2	4-5			*S.* Similar to the preceding.

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Thuya japonica	Japanese Thuya	2	25-30			*T.* Branches spreading, branchlets flattened and arranged in a frond-like fashion with scale-like, glossy green foliage. A quite hardy, useful tree. *B. C. D. G.*
Thuyopsis dolobrata	Japanese Thuyopsis	2	25-30			*T.* Pyramidal and open in growth. Resembles Thuya japonica. *B. C. D. G.*
Thymus serphyllum	Creeping Thyme	4	2-3 in.	Pale lilac	June & July	Leaves dense and aromatic. Flowers small, whorled. Creeping in habit and good for rockeries. *A. G.*
Thymus serphyllum var. aureus	Golden-leaved Thyme	4	2-3 in.	Pale lilac	June & July	A form of the preceding with pretty golden leaves in the spring. *A. G.*
Thymus serphyllum var. argenteus	Variegated-leaved Thyme	4	2-3 in.	Pale lilac	June & July	Leaves bright green, striped with silver. *A. G.*
Thymus serphyllum var. lanuginosus	Gray-leaved Thyme	4	3-4 in.	Pale lilac	June & July	Leaves downy and grayish. *A. G.*
Thymus vulgaris	Common Thyme	4	4-5	Pale lilac	June & July	Aromatic herb, resembling heather. Foliage pale green; flowers small, in terminal spikes. Good for the rockery or herb-garden. *A. G.*
Tiarella cordifolia	Foam-flower	4	8-10	White	May	A pretty native perennial with bronze, dark green leaves and star-shaped

						flowers in erect racemes, sometimes 6 to 8 inches long. Good for the wild-garden or in masses near water. *A. F.*
Tilia americana	American Linden or Bass-wood	1	50-60	Yellow	July	*T.* A stately tree with large, smooth leaves and showy, fragrant flowers. A rapidly growing tree with round, dense heads. Good for park or avenue planting. *A. D. G.*
Tilia platyphyllos	European Bass-wood	1	40-50	Yellow	June	*T.* A handsome round-headed tree with red bark and deep green, pubescent leaves. Showy and sweet-scented flowers. Foliage smaller than that of the preceding. Good for avenues. *A. E. G.*
Tilia platyphyllos var. sulphurea or aurea	Golden-barked Bass-wood	1	40-50	Yellow	June	*T.* A variety with bright yellow bark. Very ornamental. *A. E. G.*
Tilia platyphyllos var. laciniata	Cut-leaved European Bass-wood	1	20-30			*T.* Leaves dark green, deeply cut. Bark on young trees dark red. Pyramidal in growth, with upright branches. *A. E. G.*
Tilia petiolaris	Silver-leaved or Weeping Linden	1	50-60	Yellow	July	*G.* Branches slender and somewhat pendulous. Leaves large, pale green above and silvery beneath. Rapid in growth and good for avenue planting. *A. D. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Tilia tomentosa	Pyramidal White Linden	1	30-40			*T.* Branches upright, forming a pyramidal, compact head. Leaves large, pale green above and white-tomentose beneath. *A. D. G.*
Toxylon pomiferum	Osage Orange	1	15-20			*S.* A small tree or shrub much used for hedges. It is somewhat thorny and bears inedible orange-like fruits. It is a gross feeder and requires rich soil. *B. C.*
Tradescantia virginiana	Spiderwort	4	3	Purple	June to Aug.	Leaves coarse and grass-like; flowers in showy umbels. Good in masses near water. *A. F. I.*
Tradescantia virginiana var. alba	White Spiderwort	4	3	White	June to Aug.	Similar to the preceding in habit of growth. *A. F. I.*
Trillium grandiflorum	Wood-Lily or Wake Robin	4	8-10 in.	White	May & June	A tuberous-rooted native perennial, with solitary three-petaled flowers about 3 inches across. It turns light pink as it fades. Leaves broad, light green in clusters of three on erect stems. Good among ferns, in the rockery or naturalized in masses under trees. There are many species, but the T. grandiflorum is the best. *A. F. I.*
Trillium cernuum		4	8-10 in.	White	April & May	

Trillium erectum	Purple Trillium	4	8-10 in.	Red-brown	April to June	
Trillium erectum var. album		4	8-10 in.	White	April to June	
Tritoma	*See Kniphofia*					
Tritonia crocosmæflora or Montbretia		4	3	Orange-scarlet	July & Sept.	A useful bulbous plant with loose racemes of flowers on erect spikes. Foliage stiff and grass-like. It is not perfectly hardy, but can be grown successfully in well-drained soil if a generous mulch of leaves or litter is given in winter. Plant bulbs in May and set 4 inches deep. *B. C. H. I.*
Tritonia crocosmæflora var. Rayon d'Or		4	2-3	Ochre-yellow	July & Sept.	
Tritonia crocosmæflora var. Gerbe d'Or		4	2-3	Golden yellow	July & Sept.	
Tritonia crocosmæflora var. Soleil couchant		4	2-3	Golden yellow	July & Sept.	
Tritonia Pottsii	Potts' Montbretia	4	2-3	Orange	July to Oct.	
Tritonia rosea		4	1	Bright red	July & Aug.	Flowers spotted with yellow.
Trollius europæus	Globe Flower	4	1-1½	Lemon-yellow	May to July	Foliage finely-divided and deep green. Flowers globular about 2 inches

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						across and produced on stout, erect stems. A good border plant, excellent for cutting. *A. F. I.*
Trollius europæus var. flore-pleno	Double Globe Flower	4	1½	Orange	May to July	Flowers semi-double and very large.
Trollius europæus var. Orange Globe		4	1½	Deep orange	May to July	The largest and most free-flowering of the variety.
Tsuga canadensis	American Hemlock	2	60-70			*T.* A native graceful evergreen tree with yew-like foliage; branches spreading and somewhat drooping. It is rather open in growth, but by pruning it can be made very dense. Good for hedges. It is shade-enduring, therefore excellent for screens under trees or for other undergrowth planting. *B. C. D. F.*
Tsuga canadensis var. pendula	Sargent's Weeping Hemlock	2	5-6			*T.* A flat-topped form with spreading branches and drooping branchlets. A beautiful small tree. *B. C. E. F.*
Tsuga caroliniana	Carolina Hemlock	2	60-70			*T.* Denser in growth than T. canadensis, with heavier and darker green foliage. *B. C. E. F.*

Tulipa	Tulip		6-12 in.	Various	April & May	The Tulips are well-known, common garden favorites. They require a well-drained soil; and the bulbs should be planted about 4 inches deep in September or October. They are attractive in masses under shrubs, among perennials or in solid beds on the lawn, where they should be planted about 4 inches apart. After planting, a light mulch with leaves or strawy manure should be given. The varieties cultivated are too numerous to mention, but they can be obtained in all shades of white, yellow, red, pink and parti-colored, with double and single flowers. There are also early and late-flowering varieties.
Tunica saxifraga		4	6-8 in.	Pink	June & July	A pretty dwarf perennial with dense, small, dark green foliage and masses of tiny flowers along the stems. Attractive in the rockery. *A. G.*
Typha latifolia	Cat-tail	4	4-5	Dark brown	June & July	Attractive in marshes or shallow water. Leaves long, glossy and ribbon-like. Flowers in dense, silky spikes from 1 to 1½ feet long. *A. F.*
Ulmaria camtschatica or Spiræa gigantea	Kamschatkan Spiræa	4	4-5	Cream-white	July	Leaves palmate and rough with irregular clusters of very showy flowers. Good among coarse perennials and near water. *A. F. I.*

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Ulmaria Filipendula or Spiræa Filipendula	Dropwort	4	1-2	Cream-white	June & July	Foliage fern-like and dark green. Flowers in large, irregular clusters. Good for the border or rockery. *A. G. I.*
Ulmaria Filipendula var. flore-pleno	Double Dropwort	4	1-2	Cream-white	June & July	Much like the preceding, but with larger clusters of flowers. *A. G. I.*
Ulmaria palmata or Spiræa palmata	Palmate-leaved Spiræa	4	3	Carmine	June & July	Broad clusters of brilliant flowers borne on erect stems. Leaves rough, palmate. Good in masses near water or for the border. *A. G. I.*
Ulmaria palmata var. alba		4	3	White	June & July	Flowers in large and showy clusters. *A. G. I.*
Ulmaria palmata var. elegans		4	2-3	Pink	June & July	Similar to the preceding, but with clusters of light pink flowers. *A. G. I.*
Ulmaria pentapetala or Spiræa ulmaria	Queen of the Meadows	4	3	Cream-white	June & July	Foliage silvery and hairy; flowers fragrant, in thick clusters. Good in the wild-garden or near water. *A. F. I.*
Ulmaria rubra or Spiræa lobata	Meadow Queen Spiræa	4	3	Deep pink	June & July	Foliage coarse and rough. Flowers in spreading, feathery clusters. Beautiful among coarse perennials or in masses near water. *A. F. I.*

Ulmus americana	American Elm	1	60-80			*T.* A tall, graceful, wide-spreading tree with outward curving and pendulous branches. There are many distinct forms. A favorite avenue-tree, but difficult to care for because of attacks of elm-leaf beetles. Spray early in May with arsenate of lead. *A. D. G.*
Ulmus campestris	English Elm	1	60-80			*T.* Branches spreading, forming a round, open head. Foliage darker green and smaller than that of the American species and remains green in the fall for several weeks longer. Bark often corky. A good tree for avenues. *A. D. G.*
Ulmus campestris var. antarctica aurea	Golden-leaved Elm	1	20-30			*T.* A variety with small, bright yellow foliage. Good for color contrast with darker foliage. *B. C. E. G.*
Ulmus campestris var. Louis Van Houtte	Van Houtte's Elm		15-20			*T.* Bright yellow foliage much like the preceding, but tree more pyramidal in growth. *B. C. E. G.*
Ulmus scabra var. atropurpurea	Purple-leaved Elm	1	40-50			*T.* Foliage large and dark red. *A. D. G.*
Ulmus fulva	Slippery Elm	1	50-60			*T.* Foliage large, rough and deep green. Branches spreading, forming an open, broad, flat-topped head. Often used in avenue-planting. *A. D. G.*

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Ulmus montana	Scotch Elm	1	50-60			*T.* Resembles the English Elm. *A. D. G.*
Ulmus scabra var. pendula	Camperdown or Weeping Elm	1	10-15			*T.* A form of the Scotch elm with long, pendulous branches, the limbs often spreading horizontally. It is quite unusual in its habit of growth and makes a good arbor on a large lawn. *A. E. G.*
Ulmus scabra var. superba	Blandford Elm	1	50-60			*T.* Resembles the Scotch elm, but has larger foliage. *A. D. G.*
Uniola latifolia	Spike Grass	4	3	Green	July & Aug.	A perennial grass with creeping root-stock. Spikelets broad, in loose panicles, flat and heart-shaped. A good border plant, suitable for dry bouquets. *A. G. I.*
Uvularia grandiflora	Bellwort	4	1½	Lemon-yellow	May & June	Good for the wild-garden. Flowers bell-shaped, long, narrow and drooping. Foliage delicate green and very luxuriant. *A. G.*
Uvularia perfoliata	Perfoliate Bellwort	4	2	Pale yellow	May	More delicate and slender than the preceding.
Vaccinium corymbosum	High Bush Blueberry or	1	4-6	White-pink	June	*S.* A well-known native shrub with small racemes of lily-of-the-valley-

	Swamp Huckleberry					like flowers. Fruit edible in August and September; good for fall and winter color effects. *A. F.*
Vaccinium hirsutum	Hairy Huckleberry	1	1-2	White-pink	June	*S.* Somewhat like the preceding species. A good shrub for covering hillsides; valued for its rich fall coloring. *A. G.*
Vaccinium Vitis-Idæa	Fox Berry or Mountain Cranberry	1	6-10 in.	White or rose		*S.* Foliage dark green and shining. Flowers in short, terminal racemes. Berries large, dark red. Good for hillside planting. A particularly beautiful low shrub while in fruit. *A. G.*
Valariana officinalis	Garden Heliotrope	4	3	Pink	June	Heliotrope-scented flowers in dense clusters. Foliage fragrant, light green. A good border plant. *A. G. I.*
Verbascum nigrum	Dark Mullen	4	3	Yellow	June & July	Flowers in long, drooping racemes. Foliage gray-green, rough. A good plant for the rockery or wild-garden. *A. G. I.*
Veronica gentianoides	Gentian-leaved Speedwell	4	1½	Violet blue	April & May	Foliage coarse and glossy. Flowers in erect spikes and about 6 inches long. A good border plant. *A. G.*
Veronica gentianoides var. alba		4	1½	White	April & May	A white-flowered form of the preceding.

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Veronica incana	Hoary Speedwell	4	1	Violet-blue	June & July	Foliage gray and rough. Flowers in numerous slender spikes about 3 inches long. Good in the border or rock-garden. *A. G.*
Veronica longifolia var. subsessilis	Long-leaved Speedwell	4	2-3	Deep blue	Aug. & Sept.	One of the best of the late-flowering perennials. Long, deep green leaves, and flowers in numerous showy spikes or racemes, sometimes more than 1 foot long. An excellent border plant. *A. G. I.*
Veronica officinalis	Common Speedwell	4	6-8 in.	Light blue	May & June	A trailing plant with gray-green foliage and numerous flowers in small spikes. Good for massing under trees or for the rockery. *A. G.*
Veronica repens	Creeping Speedwell	4	4-6 in.	Blue-white	May	In habit like V. spuria.
Veronica rupestris	Rock Speedwell	4	4-6 in.	Purple-blue	May & June	Trailing in growth. Flowers in showy small spikes and borne in profusion. Excellent for the rockery, also good for massing under trees. *A. D.*
Veronica spicata	Spiked Speedwell	4	2-3	Purple-blue	Aug. & Sept.	A good border plant with gray-green foliage and masses of flowers on slender spikes about 6 inches long. *A. G. I.*

Veronica spicata var. alba		4	2-3	White	Aug. & Sept.	A white-flowered form of the preceding. *A. G. I.*
Veronica spuria or amethystina	Bastard Speedwell	4	1	Pale blue	May & June	A low branching perennial with numerous racemes of flowers about 3 inches long. Good for the border and rockery. *A. G.*
Veronica virginica	Culver's Root	4	4	White	Aug. & Sept.	Upright and bushy in growth with light green, rough leaves. Flowers in drooping, slender racemes. *A. G. I.*
Viburnum acerifolium	Maple-leaved Viburnum	1	5	Yellow-white	May	*S.* Good for low places or under trees. Foliage resembles that of the red maple. Flowers showy, in flat heads. Fruit large, almost black, showy. *A. D. F.*
Viburnum alnifolium	Hobble Bush	1	6-8	White	May & June	*S.* A wide-spreading shrub with large, rough leaves, sometimes more than 6 inches across. Flowers in flat heads about 4 inches across. Fruit dark purple, showy. *A. E. F.*
Viburnum cassinoides	White Rod	1	6-8	White	June	*S.* An upright shrub with dark, glossy-green foliage; flowers in flat heads about 3 inches across. Fruit light blue and very ornamental. Excellent for the shrubbery border. *A. D. G.*
Viburnum dentatum	Arrow Wood	1	6-8	White	May & June	*S.* Upright in growth with large, light green, rough leaves. Flowers in small, flat heads. Fruit blue-black.

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
						A good shrub for massing in coarse borders. *A. D. G.*
Viburnum dilatatum		1	5-6	White	May & June	*S.* Upright and bushy in growth, with hairy branches and dull green foliage. Flower-clusters small and flat; fruits showy, scarlet. *A. E. G.*
Viburnum lantana	Wayfaring Tree	1	8-10	White	May & June	*S.* A pretty shrub with large, rough foliage, light green above and silvery beneath. Stout, upright branches and large heads of flowers followed by showy clusters of bright red fruit. *A. D. G.*
Viburnum lentago	Sheepberry	1	8-10	White	May & June	*S.* An upright shrub with slender branches and deep green leaves which resemble V. cassinoides. Fruit blue-black and very ornamental. *A. D. G.*
Viburnum molle		1	6-8	White	May & June	*S.* Resembles V. dentatum, but with larger and darker green foliage. *A. D. G.*
Viburnum nudum		1	6-8	Yellow-white	June & July	*S.* In growth similar to the last. Flowers in flat clusters about 5 inches across. Fruit pink changing to dark blue. A handsome shrub. *A. D. G.*

Viburnum opulus	Cranberry Bush	1	8	White	May & June	*S.* Upright and spreading in growth with smooth, light gray branches and broad, rough leaves. Flat heads of flowers about 3 or 4 inches across. The clusters of decorative fruit begin to color by the end of July and remain on the branches and keep their bright scarlet color until the following spring. *A. D. G.*
Viburnum opulus var. steriles	Guelder Rose or Common Snowball	1	6-8	White	May & June	*S.* Dense and spreading in growth, and very decorative while in bloom. Flower-clusters sterile, globose and about 3 inches across. These are borne in great profusion on drooping branchlets. The foliage is badly attacked by aphis, causing it to curl and become unsightly. *A. E. G.*
Viburnum opulus var. nana	Dwarf Cranberry Bush	1	1½	White	May	*S.* Round and cushion-like in growth. Foliage deep green, small and dense. It rarely flowers. Pretty in masses in front of shrubbery. *A. E. G.*
Viburnum Sieboldi		1	6-8	White	May & June	*S.* Resembles V. dentatum, but with larger, darker green, glossy foliage. *A. D. G.*
Viburnum tomentosum		1	8	White	June	*S.* More upright in growth than the preceding. Leaves large and deep green. Flowers pure white in flat heads about 4 inches across. A most beautiful and useful shrub. *B. C. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Viburnum tomentosum var. plicatum	Japanese Snowball	1	8	White	June	*S.* A strong growing shrub with spreading branches and large, dark green, rough leaves. Flower-clusters globose, about 3 inches across. One of the finest shrubs in existence. It has taken the place of the old-fashioned garden snowball, because of the freedom of its foliage from attacks of the green aphis. The fall coloring of the foliage is especially fine. *B. C. G.*
Vinca minor	Periwinkle or Myrtle	2 & 4	6-8 in.	Violet	April & June	A trailing evergreen with dark, glossy foliage. Good for covering ground under trees or for the rockery. Flowers solitary about 1 inch across, very pretty. *A. G.*
Vinca minor var. alba	White Mrytle	2 & 4	6-8 in.	White	April & June	A variety of the preceding with pure white flowers. *A. G.*
Vinca minor var. aurea variegata	Variegated Myrtle	2 & 4	6-8 in.	Violet	April & June	Foliage prettily variegated with yellow. *A. G.*
Vincetoxicum japonicum or Cynanchum acuminatifolium	Mosquito Plant	4	2	White	July	Bushy in growth and completely covered with small white flowers in clusters. Foliage gray and rough. A good border plant. *B. C. G.*

Viola cornuta	Horned Violet	4	5-6 in.	Violet	Apr. to Nov.	Foliage pretty, bright and tufted. Flowers about 1 inch across, faintly scented and borne in profusion. Good for the border, for edging flower beds or for the rock-garden. *A. G. I.*
Viola cornuta var. alba		4	5-6 in.	White	Apr. to Nov.	Flowers pure white.
Viola cucullata	Common Blue Violet	4	4-6 in.	Violet	May	Leaves yellow-green, heart-shaped. Flowers on short stems, sometimes striped with white. Good naturalized under trees. *A. G.*
Viola cucullata var. alba	White Violet	4	4-6 in.	White	May	A form of the preceding with white flowers. *A. G.*
Viola pedata	Bird's-foot Violet	4	4-6 in.	Pale lilac	May & June	Finely-divided deep green leaves. Flowers large, produced in profusion. Good under trees, in the rockery or in dry, arid places. *A. G.*
Viola pedata var. alba		4	4-6 in.	White	May & June	Similar to the preceding, but with flowers almost white. *A. G.*
Viola odorata var. Hardy Russian	Russian Violet	4	6-8 in.	Deep blue	May & June	The best of the hardy violets, with good foliage and large, fragrant flowers borne on long stems. A profuse bloomer. *B. C. I.*
Viola odorata var. Wellsiana		4	8-10 in.	Deep blue	May & June	A variety of the preceding, with larger leaves and flowers which are not fragrant. *B. C. I.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Vitis coignetiæ	Crimson Glory Vine	1 & 3	20-30			A strong growing vine, good for covering tree trunks or trellises. Its foliage is large, resembles the grape, and turns a brilliant scarlet in the autumn. *B. C. D. G.*
Vitis labrusca	Fox Grape	1 & 3	20-30	Green		A rapid climber with large, thick, deep green leaves and purple-black or red-brown berries. Good for covering trees, steep banks, rocks or coarse trellises. *A. D. G.*
Vitis vulpina	Frost Grape	1 & 3	20-30	Green		Resembles the preceding, but with very sweet-scented flowers and small purple-black berries. *A. D. G.*
Wistaria chinensis	Chinese Wistaria	1 & 3	20-30	Purple	May	Pea-shaped flowers in dense, pendant clusters, sometimes 1 foot long. Light green, compound foliage. Good for heavy trellises and well adapted for covering pergolas, also attractive if trained to old trees. *A. D. G.*
Wistaria chinensis var. albiflora	White Wistaria	1 & 3	20-30	White	May	Flowers larger than those of the preceding. Very rapid in growth, but requires a warm, sheltered situation. *B. C. D. G.*

Wistaria speciosa	American Wistaria	1 & 3	15-20	Lilac-purple	June	Not as vigorous as the Chinese Wistaria. Flowers in short racemes, generally 4 or 5 inches long. Leaves dark green. *A. D. G.*
Wistaria speciosa var. alba	American White Wistaria	1 & 3	15-20	White	June	A white-flowered form of the preceding.
Wistaria multijuga	Large-flowered Chinese Wistaria	1 & 3	20-30	Deep blue	May	Undoubtedly the best of the Wistarias. It flowers while very young, varying in this respect from the common Chinese variety, and produces abundant loose clusters of flowers sometimes 2 feet long. *A. D. G.*
Woodsia ilvensis	Rusty Woodsia	4	6 in.			A good fern for the border and pretty among rocks. Leaves finely cut, 6 to 8 inches long and 1 to 1½ inches wide, growing in rosettes or tufts. *A. G.*
Woodwardia augustifolia	Chain Fern	4	1			A coarse-foliaged fern with fronds 3 or 4 inches wide. Good for naturalizing under trees and among rocks. *A. G.*
Xanthoceras sorbifolia		1	8-10	Yellow-white	May	*T.* A rare, very ornamental dwarf tree or upright shrub, with long, pinnate foliage, dark green above and pale beneath. Flowers bell-shaped, in loose, upright clusters about 3 inches across and 5 to 6 inches long. *B. C. E. G.*

Botanical Name	English Name	1 Deciduous 2 Evergreen 3 Vine 4 Herbaceous Perennial	Ultimate Height in feet	Color	Time of Bloom	Remarks
Xanthorrhiza apiifolia	Yellowroot	4	2	Purple	May & June	*S.* Good for covering steep banks and dry, sandy places. Flowers in slender, drooping racemes. Foliage light green, pinnate. *A. G.*
Yucca filamentosa	Adam's Needle	1	4	Cream-white	June & July	*S.* Foliage sword-like. Flowers bell-shaped, about 2 inches across, drooping and produced in large clusters on branching stalks. Of tropical appearance and effective in masses with shrubbery or perennials. *A. G. I.*
Zenobia pulverulenta or Andromeda speciosa		1	3	White	June	A hardy, deciduous or half-evergreen shrub which is very attractive when in bloom. It thrives well in a sandy soil; foliage glaucous. *A. E. G.*

WHEN AND HOW TO PLANT.

When to Plant

The matter of when to plant is often a puzzling question to the amateur; and to give one answer which will apply to all species and localities is obviously impossible. Spring is commonly considered the best season, for the reason that plants set out at that time have abundant opportunity to become well established in the ground before the following winter. The planting-season may extend from the earliest time at which the ground is free from frost until, perhaps, the first of June. The later period, however, requires the use of plants that have been kept dormant, as it is ordinarily unsafe to move them after they have leaved out to any extent. Their becoming established is a matter of renewing root-growth that has been disturbed by transplanting, and this fact has led the author to the belief that early fall planting may be employed equally advantageously. It has been his experience that root-growth continues after the leaves have performed their functions and have commenced to drop off. Transplanted at this semi-dormant period, the plant becomes sufficiently well established to endure the ensuing winter, and is in a position to take advantage of the earliest spring warmth, and to make vigorous growth the following summer. This fall planting-season lasts (in the vicinity of New York and Boston) from about the first week of September until the ground is frozen.

Winter Protection

When transplanted in the fall, trees and plants of a more tender nature should be protected against drying winds and severe cold. This protection should usually not be applied until after the ground is frozen to a depth of two or three inches. Individual trees and shrubs may be wrapped with straw, burlap, or evergreen boughs; and it is well to first strengthen the plant with a strong pole inserted firmly in the ground. Groups of Rhododendrons or deciduous shrubs of questionable hardiness may be protected

by inserting evergreen boughs thickly among them ; these should be somewhat taller than the plants themselves. Herbaceous perennials may be given a light mulch with hay, straw, leaves or coarse, strawy manure; but they must not be covered until after the ground is frozen at least two inches deep, and the mulch must not be so thick and heavy as to hold excessive moisture and rot the plants.

How to Plant

After the ground has been prepared by digging to a depth of eight to twelve inches, working in plenty of well-rotted stable manure, and grading carefully, individual holes should be dug for the trees, shrubs or plants. These must be large enough to allow the roots to be spread naturally, and deep enough to set the plant somewhat deeper than before transplanting. Perennials should be about an inch, shrubs two or three inches, and trees three or four inches deeper. Good loam, free from lumps and coarse manure, should be worked in among the roots, and carefully compacted. Individual trees, particularly such as are planted on lawns and avenues, may be benefited by leaving around them a circle of two or three feet, kept open by cultivation, until they become well established. Care must be taken, however, that no basin be left to gather water and allow ice to form about the trunk in winter.

Distances Apart

It is difficult to state a definite rule for the spacing of plants, as the distance varies according to the species and the effect desired. In general, it may be said that where a dense growth is desired, as in borders and screens, shrubs which attain a height of from six to eight feet should be set from three to three and a half feet apart; those growing from two to four feet high should be set from two and a half to three feet apart. Herbaceous perennials should be spaced about as follows. Plants attaining a height of four to eight inches, and not trailing, eight inches apart; those growing twelve to eighteen inches high, one foot apart; coarse plants, growing two feet high and over, one and a half to two feet apart. These distances, however, are dependent upon the bushiness or spread of the plants; hollyhocks, for instance, which grow more than five

feet tall, should be planted as near together as one foot, to obtain a good effect.

Pruning

Deciduous trees and shrubs should be given a severe cutting-back or pruning when transplanted. More or less roots are always bruised and broken during transplanting, and all such should be trimmed off with pruning-shears or a sharp knife, as the bark cannot heal over a rough wound. In order to insure a strong and healthy growth, as well as to cause the plant to become bushy or attain any desired shape, it is well to cut off from each branch one-third to one-half of the previous summer's growth. Fruit-trees respond especially to free pruning at the time of transplanting.

The matter of when and how to prune established shrubs and trees depends upon their habits and the purpose for which the operation is performed. Shrubs that bloom early in the spring form their flower-buds during the preceding summer, and they should therefore not be pruned until immediately after flowering, if their flowering is to be preserved. Late-blooming shrubs flower on wood of the same season's growth, and should be pruned while dormant, in late winter or very early spring. One-third the previous season's growth may be removed. Shrubs planted in masses should be pruned regularly to induce a dense growth, and to prevent individual plants from becoming too tall, with unsightly, open branches.

Shearing

The shearing or trimming of hedges in cold climates, should never be done later than July first, as late cutting allows a tender new growth, which does not have time to ripen properly and consequently is liable to winter-kill. The shearing of individual shrubs to form flat-topped, globe, pyramidal, or other unnatural-shaped specimens should, as a general rule, be avoided.

Fruit-trees require pruning to check too vigorous growth, and, as is the case with ornamental trees, to keep them symmetrical. The removal of a portion of the new growth concentrates the nourishment supplied by the roots in the remaining branches, and, if the tree is of bearing age, influences the production of larger, better fruit. Too severe pruning, however, induces the growth of new wood, at the expense of fruit. All cuts must be

made cleanly with a sharp knife or pruning-shears, leaving no projecting stubs of branches. If a large branch is removed, it is well to cover the exposed wood with a lead paint of good quality, to prevent the entrance of decay. If the wood is kept sound and healthy, the bark will gradually grow over the wound, finally closing it completely.

OUTDOOR CULTURE OF ROSES.

Soil

While roses can be grown in almost any kind of soil they prefer that it be deep, rich and well drained. If it contains considerable clay, the growth will be more luxuriant and the blooms richer in color. As they are gross feeders, the soil should be well enriched with thoroughly decomposed stable manure. If this is done the fall before the roses are to be planted and thoroughly spaded into the soil, the results will be better. The subsoil should be loose and of such a character that water will pass through it quickly. If it is not naturally so, the subsoil should be removed to a depth of two or three feet and the bed refilled with coarse porous material at the bottom and rich soil placed above.

Location

Roses like protection from strong winds in summer, also from the damaging winds of March and early April when the sap is just becoming active in the top and before root action has begun. They require a fair amount of sunlight and a southern exposure. They should not be planted too near buildings or tall trees, for in these places they are more susceptible to attacks from mildew. They should be protected from alternate freezing and thawing during late winter, for this is especially likely to cause winter-killing. The location for the rose garden should be such that when once frozen it may remain in that condition when properly mulched.

Season of the Year for Planting

Field-grown plants should be transplanted in early spring, or in the fall as soon as they become sufficiently dormant to be moved without danger of shriveling or withering. Spring is usually considered the best season, as the plants start into growth at once, and become well established before the following winter.

Pot-grown roses can often be secured and planted during the summer, and are useful for filling in vacant spaces in beds.

Distances for Planting

Distances apart for planting roses are regulated somewhat by the varieties used. Such varieties as Moss Roses, Persian Yellow Roses and other strong growing kinds may be set three feet apart,

Hybrid Perpetuals about two feet apart, and Teas and Hybrid Teas from one and one-half to two feet apart. In planting several varieties in one bed, the stronger growing kinds should be placed in the centre, or if in borders, they should be set back of the weaker growing kinds.

Planting

Budded or grafted plants should be set so deeply that the junction of the bud or graft is at least three inches below the surface of the soil. In fact, deep planting is one of the most essential things in successful rose culture. After placing the plant in position, the earth should be firmly pressed in around it. The roots should be placed in a natural position, and loam free from hard lumps carefully worked in between them. Care should be taken that plants, while out of the ground, are kept from the wind and sun, and that the roots are never allowed to become dry. Pot-grown plants should be carefully removed from the pots and set in the ground without disturbing the roots or breaking the ball of earth, and after planting, some shade should be given for a few days, and a liberal amount of water applied.

Pruning

If dormant plants are set out in the spring, they should be pruned immediately after planting. After being set to the proper depth and the ground leveled, they should be cut down to within three or four inches of the ground. If planted in the fall, the pruning should be deferred until early in the following spring, so that such wood as winter-kills may be removed.

To obtain the best flowers, and in order to keep the plants thrifty and attractive, it is necessary that ever-blooming varieties should be cut back to within a few inches of the ground each spring. In pruning the Hybrid Perpetuals all weak wood should be removed and the strong canes cut back to within three or four buds above the ground. Moss Roses, and such other varieties which bloom only in the spring, should be pruned immediately after flowering.

Summer Treatment

During the summer an occasional watering with liquid manure will be beneficial. Arrangements should be made if possible for a constant water supply in the rose garden, for the foliage is kept in a good, healthy condition and insects are kept in check by syringing with considerable force early in the morning on bright days. Water should not, however, be applied during the middle of the day.

Winter Protection

In late fall, when the plants are well ripened, some protection should be given, and while loam heaped up around the plants furnishes the best protection, leaves, hay or straw to the depth of from eight inches to one foot may be used for covering. It is best to apply mulches for winter protection after the ground has frozen somewhat.

Insects

Many insects attack the rose plants. Among these the green fly, or aphis, the rose chafer, or rose-bug, and the red spider are the most troublesome. The rose-bug is the hardest of the enemies to combat, and it has been the experience of the writer that paris green dusted over the plants is most effective.

The red spider is a very small insect, which is scarcely distinguishable to the eye. It is generally found on the under sides of the leaves, which soon assume a sickly yellow tinge. It is most destructive to plants trained against buildings or in positions where they are particularly exposed to the hot sun. The most effective remedy is syringing with cold water, thrown in an upward manner, to reach the under sides of the leaves, and applied with sufficient force to remove the insects from the leaves.

The aphis, or green fly, can be exterminated by dusting the plants with tobacco dust while they are wet with dew, or by spraying with water in which tobacco stems or leaves have been soaked.

Fungous Diseases

Mildew often causes considerable injury. It is generally caused by sudden atmospheric changes, or by continued cloudy or damp weather. As a remedy, dry sulphur may be shaken over the plant early in the morning, while the leaves are wet with dew.

LAWNS AND HOW TO MAKE THEM.

The term "lawn," as generally understood, is applied to a grass-covered plot of ground, usually in the neighborhood of a dwelling or other building, kept smooth and clean by continuous care and close mowing. In more than one sense the lawn is an essential part of any well-kept estate; but its chief service is, together with its attendant trees and shrubs, as a setting for the more individual features it may surround.

The first matter to be considered in preparing a lawn is the grading. The contour should be such that no hollows allow the retention of water during spring "thaws;" yet no opportunity for erosion, due to excessive slope or concentrated drainage, should be allowed. It may be here suggested that a slightly concaved surface adds to the apparent extent of a plot—a point that frequently is taken advantage of in grading between a house and the street upon which it fronts when the actual distance is short. The matter of drainage must, however, receive careful consideration when this method is attempted.

Very rarely is under-draining necessary, except in unusually heavy or clayey soil; when employed, lines of three-inch tiles should be laid fifteen feet apart, and from two and one-half to three feet below the surface.

In uneven ground, when the leveling or lowering of the surface is necessary, the top-soil, if it is loam of any value, should be laid aside, and the subsoil removed to the required depth, after which the loam may be replaced and graded evenly. For a vigorous and permanent greensward, from eight to ten inches of loam are required. The latter should be enriched with an abundance of well-rotted stable manure applied at the rate of eight cords to the acre, which when spread evenly gives a depth of two or three inches. This should be thoroughly worked into the soil by plowing or spading, to a depth of eight inches or more; stones and coarse sods and weeds must be removed by harrowing or

raking. It is a frequent objection that barn manure carries quantities of weed-seeds, but as a matter of fact, the weeds springing from this source are usually of small consequence, the greater number having been already in the soil.

The best season for sowing grass-seed is doubtless in early spring, but good results are obtained when the sowing is made in the fall, early enough so that the grass will make substantial growth before frost. It is well to edge walks, drives, bedding-spaces, and other portions exposed to injury with sods of firm texture, and of a quality that will blend later with the seeded growth. Excellent mixtures of lawn-grass seeds are supplied by reliable seed-dealers, and their advice can generally be relied upon in the selection of a mixture suitable for use in any particular location. As the proportion of non-germinating seeds is often considerable, even in the best mixtures, the quantity sown should be liberal, the usual amount being four bushels per acre, or one-quarter pound per hundred square feet.

The seed should be scattered evenly, and in sowing it is advisable to go over the ground twice, lengthwise, then crosswise. The work should never be attempted on a windy day; early in the morning is considered the best time of day. The soil should be moist, yet not wet enough to prevent the easy raking-in of the seed, and a smooth rolling immediately after sowing. The rolling should be done thoroughly by two or more applications of a moderately heavy iron roller. In a dry season, daily watering is beneficial. This should be done carefully and lightly, so as not to wash the seeds from the ground. After the first mowing, the rolling should be repeated once or twice; and frequent mowing will do much toward inducing a thick, velvety growth. Should the new grass be killed in spots during the first winter, the bare spaces should be resown liberally; depressions caused by the settling of newly-graded soil may be filled with finely-screened loam in which seeds have been thickly mixed. Another rolling should follow.

The care of lawns involves three things: the eradication of weeds, feeding, and mowing. For the first, various chemical weed-killers are found in the market; but their use is no more certain and consumes scarcely less time and labor than the old-fashioned

method of uprooting the undesirable plants with an old knife or some suitable garden tool. One of the best ways of keeping down the weeds is to encourage the grass by generous treatment, as it is where the grass is thin and the soil is poor that the weeds grow most vigorously.

Yearly dressing with fertilizer of some kind is necessary to the best condition of any lawn. As a rule, commercial fertilizers do not give the permanent effect secured through using well-rotted manure. Pulverized sheep-manure, wood-ashes, bone-dust, or fine rich soil, or humus, may be used to advantage. The application should be made in early spring, so that spring rains will carry the plant-food well into the soil. As has already been said, watering, for the old lawn as well as for the new, should be done by some means that affords a fine spray of long duration, rather than by a deluge from a coarse nozzle.

Frequent mowing is essential to the well-being of any lawn. By it the growth of coarse seed-stalks is prevented, and the grass is kept smooth and of good texture. A carrier for catching the grass as it is cut by the mower is a great convenience, and, especially in the case of a new lawn, avoids the danger of uprooting the grass by raking too vigorously. The rolling action of the lawn mower is also beneficial.

THE INSECT PESTS OF SHADE TREES AND SHRUBS.

By H. T. FERNALD, Massachusetts Agricultural College.

The insects which attack our ornamental trees and snrubs are of many kinds and work in a variety of ways. Almost every kind of plant has its especial foes, while numerous general feeders may be found on many different plants. Some feed on the roots, others bore in the trunk or branches, many more consume the leaves, and others suck the sap from the branches or leaves.

Such a diversity of methods of attack renders necessary corresponding methods for checking the ravages of these pests, and a knowledge of how the insect causes the injury is in each case necessary before successful treatment can be undertaken. So many different insects are concerned, however, that anything like a careful consideration of them must be left to special works on the subject, and only general considerations and a more complete discussion of a few of the most serious pests can be included here.

In general, insects feed either by biting off and swallowing pieces of the plant, or by sucking its juices. Biting insects are provided with jaws for this purpose, while in sucking insects the mouth-parts are combined to form a sucking tube, together with structures which enable these insects to make holes through the surface of the plant to where the sap is, and then to suck this into their bodies.

With biting insects, a poison spread over the surface, which the insect will swallow as it feeds, will pass to the stomach of the pest and cause it to die, and such poisons are generally called stomach poisons, for that reason. The more usual stomach poisons used are paris green and arsenate of lead. For sucking insects, stomach poisons spread, as they must be, on the surface of the plant are of no value, the sucking tube of the insect being passed through this layer into the hole it makes in the plant, while the plant juices are extracted from beneath the surface. For such insects as these, then, other methods of control must be

used, and oils, soaps and similar materials, called contact poisons, are the more usual substances for this purpose. Contact poisons appear to destroy insects by covering them, or at least the openings of their breathing organs, with a film, thus suffocating them, and it is at once evident that unless a sucking insect be actually touched by some of the contact poison, the treatment will fail. With biting insects the poison may be spread over the tree to wait until the insect in its feeding reaches and swallows it; with sucking insects only those touched by the poison at the time it is applied will be destroyed; and if we remember that many of the sucking insects are exceedingly small, the necessity for the most thorough application possible of the poison becomes evident.

GENERAL FEEDERS.

THE LEOPARD MOTH.

This insect is a native of Europe. It reached this country at Hoboken, N. J., about 1881, and since that time it has spread eastward, mainly along the coast, and is now found quite abundantly as far east as eastern Massachusetts. It attacks many kinds of shade trees and shrubs, and appears to be most injurious in and near the larger cities and towns.

The adult insect is a good sized moth with white wings bearing numerous blue-black spots. It appears during the latter part of May, from which time specimens may be found till late in September. The eggs are laid in sheltered places such as crevices of the bark, usually on the small branches, and on hatching, the young borers work through the bark to the wood. Here they feed, working downward. When the branch becomes too small for the rapidly growing borer, it leaves it and enters another. Sometimes the boring is along the centre of the branch; sometimes it takes the form of a large cavity, and sometimes it passes around the branch and girdles it. By winter the borer is usually about half grown, and has entered one of the larger branches, leaving weakened smaller ones behind.

The following spring, feeding is resumed in the larger branches, and by the end of this season the borers are full grown. Early the next spring, they work out to the surface and change to quiet pupae, from which the adult moths emerge during the summer.

Spraying for these insects is useless, as the moths do not feed and the borers work inside the branches almost entirely. Infested limbs are quite easily recognized by the woody, partly digested material thrown out of the openings of the tunnels, and these limbs can be cut off and burned, or if not too badly injured a little carbon disulphide (obtained from druggists) can be injected into the openings of the tunnels, which should then be immediately closed with putty or soap, so that the gas produced may not escape, but follow along the tunnel and kill the borer. Badly infested trees are usually too difficult to treat and should be destroyed. Careful watching during the summer, to discover parts attacked before it is too late, followed by the removal or treatment of the infested branches, as described, is the best treatment at present known.

THE SAN JOSE SCALE.

The San José Scale is probably a native of China, but is now present nearly everywhere in the United States. It feeds upon a large number of trees and shrubs, seriously checking their growth, and in many cases destroying them entirely. Besides fruit trees and currants, on which it is a most serious pest, it is often very abundant and injurious to the following shade trees and shrubs: Amelanchier, Cornus, Crataegus, Cydonia japonica, Populus, Prunus, Ptelea, Pyrus, Ribes, Rosa, Salix, Sorbus, Syringa, Tilia, Toxylon and Ulmus, of different species (see tabulated list of plants, page 142). It is also often found on other trees and shrubs, but the above are those most liable to be much injured.

The adult insect is smaller than a pin-head and covered by a hard shell or scale, circular in outline, and brown or grayish in color. It is usually most abundant on the smaller branches and twigs, but when very abundant may also be present on the leaves. When winter sets in all ages may be present, but the very young and the adult scales die during the winter, leaving only those from

one-third to two-thirds grown to reach the adult condition in the spring. This is accomplished by the latter part of May or early June, and then the young appear, one or two every few days for a month or more. These young, which are born alive, are very tiny, lemon-yellow insects which escape from beneath the scale of the parent and crawl about for a day or two. Each has a long beak through which to suck the sap from the plant, and on finding satisfactory places the young settle down, force their beaks through the bark and begin to feed. White waxy threads now grow out of their backs and mat together, forming very small white specks as the first coverings of the insects. To these are added molted skins from the insects beneath, turning the scales brown or gray, and enlarging them, and thus the scale covering the adult insect is gradually formed.

The young become adult in about a month, and then they themselves produce young and there are three or four generations, according to the length of the season, before winter ends this process. During the summer enormous numbers of the insects are produced in this way. If all the young born survived, and themselves produced the normal number of young in each generation, it would be possible for the descendants of one female to number over three billions in a single season. Fortunately, death reduces this number greatly, but enough remain often to seriously injure or even kill the plant they are on, by removing the greater part of the sap from it, and thus drying it up.

This pest is very difficult to control, first, because being a sucking insect it must be actually hit by a contact poison sprayed onto it; second, because of its small size, which renders it very difficult to reach all of the individuals by spraying, and finally, because of the shell or scale which covers it, protecting it from the spray. For this reason very strong materials must be used, in order either to penetrate or work under the scale, and these are hardly safe to apply while the plant is growing. Spraying for this pest must accordingly be done during the period after the leaves drop in the fall and before the buds open in the spring. The lime-sulphur wash and miscible (often wrongly called "soluble") oils are the most usual sprays to use for the purpose. These materials are on the market under various trade names, and only need dilution

with water before applying. The spraying must be very thoroughly done, however, if satisfactory results are desired, and it seems desirable, if possible, to use an oil one winter and the lime-sulphur wash the next, thus alternating the two materials.

The Gypsy Moth.

This notorious pest was accidentally introduced from Europe to a point near Boston about 1869, and has now spread all over eastern and central Massachusetts, into central and southern New Hampshire, southern Maine, and portions of Rhode Island and Connecticut. It is likely to appear anywhere in the New England and Middle Atlantic states locally at any time, as the result of being carried on freight, trees, automobiles or trains from infested territory to that not yet infested.

The adult moths are found in July and August and a few stragglers may be met with early in September. The female has a large body and grayish-white wings bearing irregular, indefinite, darker markings, and measuring about an inch and a half between the tips of the extended wings. The males are rather smaller, and much darker in color.

The eggs are laid mainly during the latter part of July and August, in clusters of from two hundred to four hundred, mixed with brownish hairs from the body of the moth, which conceal the eggs themselves. The clusters are placed on trees, rocks, fences or on any rubbish at hand, and the eggs remain unhatched until the following spring. The tiny caterpillars escape from the eggs about the time the leaves develop, and begin to feed, and are full grown in most cases during June, being at this time two inches or more in length, rather stout, and with numerous rather long hairs, though the caterpillar could hardly be called "furry." These caterpillars now crawl from the leaves to the trunk, fences or rocks, and here they spin a few scattering silk threads around themselves, and then change to short, brown pupae, within which they change from caterpillars to moths. This change having been completed, the moths escape from the pupae in July or August, and lay their eggs for another generation.

This insect is a very serious pest for several reasons. It feeds in the caterpillar stage on a very large number of trees, shrubs and other plants, and is most voracious. It increases rapidly in numbers and is very resistant to stomach poisons used as sprays. On the other hand, the female moth is so heavy it cannot fly, so that the insect spreads mainly by the caterpillars' crawling, and by the caterpillars' or moths' being carried to new places by vehicles they may get onto.

The best methods for the destruction of this pest are by destroying the egg clusters during the fall or winter by soaking them with creosote oil mixed with a little turpentine and coal tar. This can be done by using a swab soaked in the mixture and fastened to the end of a pole, pressing the wet swab against the egg clusters. The caterpillars feed mainly at night and hide from the light to a considerable extent in the daytime, hence loose burlap bands around tree trunks will draw many there for concealment, and they can then be easily destroyed. In some cases, spraying heavily with a strong stomach poison, particularly when the caterpillars are young, is quite effective. At present, all hope of a general control of this insect rests in the success of parasitic enemies imported from the native home of this insect, an experiment now being conducted by the United States Department of Agriculture and the State of Massachusetts, in co-operation.

THE BROWN-TAIL MOTH.

The brown-tail moth was accidentally brought to Massachusetts about 1890, and since that time has spread from near Boston, where it was first observed, to Maine and Nova Scotia on the northeast, central New Hampshire on the north, the Connecticut River on the west, and to northeastern Connecticut on the south. It has also been found in other parts of the country on imported plants, but so far as known, these cases have all been immediately discovered and the insects destroyed. Colonies which originated in this way are likely to be discovered at any time, however, and in any case a general distribution of the pest over at least the eastern United States is almost certain to occur sooner or later.

The adult moth is pure white, except at the end of the body, which bears a tuft of golden brown hairs, which has given the insect its name. It measures about an inch between the tips of the extended wings, and flies at night during the first half of July. The moths are active and are attracted to lights, and may often be seen clustering around street lights. They lay their eggs in clusters on the leaves of trees, mingled with brown hairs from the end of the body, which conceal the eggs themselves, and an egg cluster may contain from 200 to 400 eggs. These hatch during August, and the little caterpillars feed in company, and when abundant may skeletonize the leaves, causing them to turn brown.

In September each cluster of caterpillars passes to the tip of a twig and here spins a web, drawing together a number of leaves for the purpose. These webs or nests of silk and leaves are quite small, being perhaps three or four inches long, and generally an inch or two across, and are very tough and resistant to attempts to tear them open. In these tents the caterpillars winter, leaving them as the buds open and the leaves begin to grow in the spring. The caterpillars now scatter in all directions, feeding on the buds and leaves, and become full grown about the middle of June. They then pupate among the leaves, and from these pupae the moths appear in July.

The caterpillars are quite general feeders, but their favorite food plants are perhaps the fruit trees, the oaks, maples and elm. Two reddish spots on the back, one behind the other and not far from its hinder end, make the recognition of this caterpillar easy.

Besides the injury to the trees which this insect causes, it is the source of much discomfort and even of suffering to persons where it is abundant. The caterpillar bears numerous finely barbed and brittle hairs, some of which, at least, are also poisonous, and when the caterpillars molt, pupate, or the adults escape from the pupa, these hairs seem to become liberated and are carried by the winds. When the hairs strike the human skin, they appear to work their way into it and produce a severe irritation known as the " brown-tail rash." Cooling mixtures may be used to relieve this, such as

Menthol,	10 grains
Zinc oxidi,	2 drams
Aq. calcis,	8 ounces
Acid carbolici,	15 drops

To control the insect, use is made of the habit of the caterpillars of wintering in colonies together in webs or nests at the tips of the twigs, these being cut off and burned at any time during the late fall or winter. When the caterpillars are feeding, either during the early fall or in the spring, spraying with arsenate of lead is a quite effective method of control.

THE FALL WEB WORM.

This insect feeds on a large list of shade trees as well as on fruit trees, the elms, willows, poplars and butternuts being, perhaps, the more favored food plants among the former group.

The moth is very variable in appearance, in northern New England greatly resembling that of the brown-tail moth, except that it has no brown tail. Further south the wings may bear numerous small, black spots. It flies during June, July and early August and lays its eggs, several hundred in a cluster, on the under side of a leaf. These eggs soon hatch and the caterpillars begin to spin a web, under which they feed. This web is extended as they grow and need more food, enclosing more of the leaves, until quite a part or all of a branch may be thus enclosed. After feeding thus for a month or more the caterpillars leave the web, and either in the ground or in crevices of the bark of the tree spin their cocoons. The moths may emerge from these cocoons the same year and lay eggs for a second generation, the caterpillars of which will feed the same fall, but in New England it is more usual for them to pass the winter in the cocoon, the moths appearing the following summer.

As the caterpillars of this insect feed together under a web, it is easy to cut off this and kill the caterpillars, particularly when the webs first appear and are small. Burning the webs on the tree is sometimes resorted to, but many of the caterpillars are liable to escape, and the tree is liable to be injured by this method. Spray-

ing with arsenate of lead close around the webs, so that the leaves next to be enclosed shall have been poisoned, is also a good method of control. Numerous natural enemies of this insect aid man by holding it in check to some extent.

CANKER WORMS.

The canker worms are two closely related insects, known as the Fall Canker Worm and the Spring Canker Worm. In both species the caterpillar is an " inchworm " or " looper; " in both the caterpillar feeds during the spring months, and when through feeding, leaves the tree to pupate in the ground; in both the female moth is wingless; and in both the eggs are laid by the wingless female on the twigs of the tree, to which she must, therefore, crawl from the ground.

The moths of the fall canker worm come out of the ground during warm days in late October, November and early December, and the females crawl up the trees to the twigs, where they lay their eggs in clusters. These eggs hatch about the time the leaves appear the following spring, and the caterpillars feed for four or five weeks until full grown, then go into the ground to pupate, the moths from the pupae appearing late in the fall, as already stated. While the caterpillars are feeding they will, if disturbed, spin down from the trees on silken threads.

The spring canker worm moths come out of the ground during the first warm days of spring, even in February in some cases, crawl up the trees to the twigs and lay their eggs. These soon hatch and the caterpillars feed during about the same months as those of the fall canker worm, leave the tree at about the same time and pupate in the ground, but the moths do not emerge that year, spending the winter as pupae in the ground.

These insects are quite general feeders, consuming the leaves of the apple, elm, chestnut, pear, oak, hickory, box-elder, maple and other trees. As the eggs are laid on the twigs by wingless females, it is evident that anything which will prevent these females from climbing the trees will be effective, and accordingly sticky bands and metal deflectors are extensively used. In general the sticky material known as " Tree Tanglefoot " has proved the most suc-

cessful material to use for this purpose, bands of tar and printer's ink needing renewal frequently, while metal deflectors are expensive and often need readjustment to prevent gaps opening, through which the insects can pass. For the fall canker worm the Tanglefoot should be applied by the middle of October in a band from four to six inches wide, while for the spring canker worm it should be applied the first warm day in February, even if there be snow on the ground. If the canker worms are already feeding on the foliage when their presence is first discovered, spraying with a stomach poison is the most satisfactory remedy.

THE WHITE-MARKED TUSSOCK MOTH.

This insect feeds on the leaves of many of our shade and fruit trees and is quite abundant throughout the eastern United States. The winter is passed in the egg stage, the eggs being laid in clusters on the old cocoons of the female moths, covered by a white froth which quickly hardens, forming a crust. These egg masses and the cocoons on which they occur are found on the larger limbs and trunks of the trees and sometimes on the smaller twigs, generally in the latter case with a leaf more or less bound to the cocoon, thus rendering these more noticeable during the winter.

The eggs hatch in the spring andthe cater pillars feed till full grown in June. They are then an inch and a half or more in length, yellow and black in color, and have two long pencils of black hairs at the head and a third at the hinder end of the body, besides four short, dense, yellowish, very noticeable tufts in a row a short distance behind the head, which is coral red. The caterpillars now go to the trunk and larger limbs, where they spin their silken cocoons, from which the adult moths soon escape.

The female moth being wingless, lays her eggs on the outside of the cocoon from which she emerged, covering them with a white froth, as already described. The eggs soon hatch and the caterpillars crawl to the leaves, where they feed during the latter part of July and August. When full grown, they in their turn go to the limbs and trunk to form their cocoons, from which the second generation of moths escape and lay their eggs which winter over.

There are, accordingly, two generations of this insect each year, the feeding periods of the caterpillars being during May and early June, and late July and August.

To check the destruction caused by this insect, the egg clusters covered by the white crust may be gathered and burned whenever they are noticed. Spraying with arsenate of lead early in May and again the latter part of July will destroy the caterpillars, but is unnecessary if the egg clusters have been attended to. Banding the trunks of trees not infested, with Tree Tanglefoot, will protect these if their branches do not touch those of infested trees, as the female is wingless, and to reach the trees she or the caterpillars must crawl up the trunks.

SPECIAL FEEDERS.

THE ELM-LEAF BEETLE.

This insect reached the United States from Europe about seventy-five years ago and is now quite generally distributed through the eastern states. The elm is its only food plant, and the European elm generally suffers more from its attacks than the American species.

The insect passes the winter as the adult beetle, hiding in any protected places available, such as attics, old chimneys, etc., and is often found on the windows in houses in the spring, seeking to escape to the trees. The beetle is about a quarter of an inch long and about half as wide, and is yellow in the summer with a dark band on each side, but after wintering over, the yellow changes to a dull olive green.

After the elm leaves appear the beetles fly to the trees, and feed, eating irregular holes and laying their eggs. These are yellow in color and are placed on the under sides of the leaves, generally along a vein and in two rows, and number from a dozen to thirty. The beetle feeds and lays its eggs in this way for several weeks. The grubs which hatch from these eggs feed on the under surface of the leaves, leaving the upper surface entire, for fifteen or twenty

days, then crawl down the tree to the larger limbs, trunk, or even to the ground, and pupate, either in crevices of the bark or on the ground, the adult beetles escaping from the pupae after about a week.

In the more northern states these beetles are the ones which winter over, and though they may feed somewhat on the leaves during the fall, do little injury. In the middle and more southern states, however, they return to the trees and lay eggs for a second generation of grubs, which feed during the late summer months and become adult before winter.

It is rarely profitable to spray twice for these insects—once as soon as the leaves have developed, and again about the time the young hatch—and the usual treatment is to spray with arsenate of lead, using about five pounds of the arsenate to fifty gallons of water, about the time the eggs hatch, the exact date varying considerably with difference of latitude. The spray should be directed so as to reach the under side of the leaves as far as possible, as the grubs feed only on that side.

If for any reason spraying is not possible or has been neglected, the trunk and larger limbs of the trees should be made quite smooth, to leave as few crevices as possible high up where the grubs might pupate, thus inducing them to come farther down where they may be destroyed by the use of a contact poison, such as strong kerosene emulsion. Sticky bands on a tree are of no protection against this insect, as the beetle flies freely.

The Sugar-maple Borer.

This insect attacks trees in full vigor, the borer making a burrow often several feet in length in a single season. Where this runs obliquely around the trunk or a limb it causes a more or less complete girdling, seriously injuring, or in some cases where two or three borers are present, even killing the tree.

The adult beetle is about an inch long, black and yellow, the markings making it very noticeable. It is found mainly during July and August, during which period the eggs are laid. The young borers which hatch from the eggs bore just under the bark,

mainly in the trunk or near the bases of the larger limbs. Here the winter is passed, and the following spring the boring is resumed, the tunnels running in any direction, though most often upward or obliquely around the tree. Later a deep burrow is formed farther in the tree, running upward toward the heart. Here the borer pupates, escaping the following summer as the adult beetle.

Few effective methods of control can be used against this insect. Discoloration of the bark and particles of frass found on the trees in the fall may indicate about where a young borer is at work, and the use of a knife, cutting out the borer there, is advisable. If a burrow can be found in which it seems probable a borer is present but out of reach, a little carbon disulphide placed on some cotton and pushed into the hole, which should then be stopped up with soap, putty, or some similar material, should destroy the borer. Treating the trunks of the trees with a carbolic acid wash about the middle of June would probably provide some protection against egg laying on trees thus treated. This wash is made by adding a gallon of hot water to a gallon of soft soap, adding a pint of crude carbolic acid and letting it stand twelve hours before diluting with eight gallons of soft water. This should be thoroughly washed over the trunk and also a few feet up on each of the larger limbs.

THE COTTONY MAPLE SCALE.

This scale insect is frequently very injurious to maples, particularly soft maples, and is also sometimes found on other plants. It is located on the twigs and resembles a small tuft of cotton protruding from beneath a small brown scale.

The insect is not often very noticeable during the spring months, the cottony portion not having developed. During the summer, however, the cottony threads form, and among these the eggs and young occur. The young soon leave the cotton where they were born, and pass to the leaves and settle down, mainly along the veins, to feed. Each now secretes a covering scale, and, before the leaves drop, the insects travel back to the twigs to pass the winter. In the spring they grow rapidly, and in June produce the cottony threads, making them more noticeable.

Brushing infested twigs with a brush or broom wet with kerosene emulsion has been suggested as a treatment for this insect, but winter spraying with about twenty per cent. kerosene emulsion has given the most successful results.

OAK GALLS.

Though a large number of insects attack the various kinds of oaks, few can ordinarily be regarded as serious pests. If caterpillars are feeding on the leaves, spraying with a stomach poison is usually a sufficient treatment. Borers in the trunk can be handled as suggested for the maple borer, and sucking insects can be controlled by spraying where they are with a contact poison. Gall insects, however, may cause perplexity, as neither of the methods just named would seem to fit this case.

It is very unusual for gall insects to be so abundant on a tree as to render it liable to die. It is very common, however, for them to disfigure the tree and thus lead to a desire for treatment. In cases where galls are formed on the branches they are likely to become permanent eyesores, and such branches should be promptly cut off and burned. Elsewhere on the tree there is little which it will pay to do, and patience will usually be rewarded in a year or two by the disappearance of the galls, as their makers are gradually overcome by the natural enemies of these insects.

THE ROSE-LEAF HOPPER.

This is a common pest on roses grown out of doors. During the latter part of May and in June, numerous tiny young of this insect may be found on the under side of the leaves, from which they suck the juices, producing whitish spots, and if abundant may cause the leaves to turn yellow and drop off. At first these insects cannot fly, though they can hop freely, but after they have become adult, disturbing the bush may start them flying in clouds. These adults are about an eighth of an inch long and pale yellow in color.

Thorough spraying of infested plants with kerosene emulsion or soap is quite effective as a treatment, provided that the spray be directed against the under sides of the leaves and be driven rather

suddenly, hitting the insects before they have time to hop or fly away. If a strong stream of water can be driven at them through a garden hose, this may be sufficient without resorting to the insecticides.

THE ROSE PLANT LOUSE OR APHIS.

Small green plant lice or aphides are frequently met with on roses during the spring and summer months, gathering most abundantly on the buds and younger leaves. They are nearly always wingless and increase very rapidly, from four to ten young being produced almost every day by the adults. These pests feed by sucking the juices from the plant, and when abundant on the buds frequently blight them. They can be held in check by spraying the plants with kerosene emulsion or soap, but it should be borne in mind that as only those touched by the spray are killed, the spraying must be very thorough to be successful, and if only a few escape, there will be multitudes present again, in the course of three or four weeks.

THE ROSE CHAFER.

These insects, often known as rose bugs or rose beetles, are about half an inch long and light brown in color. They appear about the time the roses begin to bud and seem to feed almost entirely upon the buds and flowers, being present for three or four weeks. They are not restricted to the rose for food, but attack the buds and blossoms of various ornamental plants, besides the blackberry, grape and fruit trees.

The eggs are laid in the ground and the grubs feed on grass roots, and pupate there. There is, therefore, no successful method of attacking this insect, except during its adult condition. In this stage, however, it is very hardy and resistant to poisons. It can be destroyed by spraying with very strong arsenate of lead, but even then, it is usually several days before it succumbs, and during this time it continues feeding, while heavy spraying of the plants while in bud and flower is hardly practicable. The only successful treatment, therefore, is by hand-picking, or by jarring the insects off onto cloths, from which they can be gathered and

destroyed by dropping them into kerosene. As the beetles are most active during the warm part of the day, this treatment should be used early in the morning or toward night, when they are less inclined to fly. Where it is possible to enclose the buds in paper bags, this will give protection from the beetles, but this is not always practicable.

THE RED SPIDER.

This animal, which is not really an insect but a mite, is frequently found on the leaves of roses as well as other plants. It is not larger than a pin head, yellowish or reddish in color, and sucks the vitality from the plant, causing the leaves gradually to turn pale and become stunted, and in time the plant dies, unless treatment is applied. These pests are particularly sensitive to sulphur, however, and flowers of sulphur dusted over the plant, as much as possible placed on the under side of the leaves, or mixed with water at the rate of an ounce of the sulphur to a gallon of water, and sprayed onto the plants, is usually a fairly satisfactory treatment. In some cases the use of soapsuds instead of the water to add the sulphur to, seems to be more efficacious.

THE SPRUCE GALL LOUSE.

Soft, fleshy green galls often noticed in June and July at the bases of the twigs of different kinds of spruces, are the work of gall-making plant lice. The lice feed in chambers in the galls, which are often an inch long and half as wide, during the months named, but by August the galls crack open outside each cavity and turn brown, thus permitting the lice to escape. During the fall and winter these lice, in one stage or another, may be found on the tree, and the following spring eggs are laid, from which the gall inhabiting insects are produced.

The formation of a gall at the base of a twig nearly always causes the death of that twig, and a tree where the insects are abundant becomes thin, with many dead twigs showing brown galls, and as a whole is by no means the ornament it should be.

When the galls first appear on a tree, it is generally best to pick them off and destroy them. When they are abundant, this method becomes no longer practicable, and a thorough spraying with two pounds of soap dissolved in a gallon of water, applied about the third or fourth week in April, is the best treatment available.

THE OYSTER-SHELL SCALE.

This scale insect attacks the willow, poplar, ash, lilac, and several other ornamental trees and shrubs, besides the apple, and frequently destroys the tree it is on. The scale covering the insect is bluntly pointed at one end, rounded at the other, two or three times as long as broad, and generally more or less bent toward one side, somewhat resembling an oyster-shell in form. It varies in color, but is some shade of gray or brown. During the winter the scale shelters beneath itself the dead female insect which formed it, together with from thirty to one hundred pale straw-colored eggs. These eggs hatch between the middle of May and the tenth of June, according to the latitude, climate and advancement of the season, and the very minute whitish young crawl about seeking for places where they may settle down to feed. When such places are found, they thrust their beaks through the bark and begin to suck the sap from the plant. A scale now begins to be formed over the back of the insect, which becomes adult by fall. The eggs are laid under the scale and the insect dies.

In the more northern states these eggs remain under the scale till the following year, before hatching. Further south they may hatch the same season, giving a second generation the same year.

The fact that the eggs of this pest all hatch at about the same time is made use of in the treatment employed, which is to spray very thoroughly as soon as the eggs hatch—at which time the tiny whitish young can be seen crawling around, if looked sharply for—with linseed oil emulsion, made as follows:

Hard soap,	1 pound
Raw linseed oil,	1 gallon
Water to make	12 gallons

Dissolve the soap in a small quantity of warm water, add the

oil and churn by forcing through the spray pump, pointing the nozzle back into the mixture, until it becomes thick; then add the rest of the water, and spray.

It is well to repeat this treatment about ten days later, both because the first treatment may have missed some of the insects and because some of the eggs may not have hatched at the time of the first spraying.

INSECTICIDES.

ARSENATE OF LEAD.

This is now sold ready for use, by adding the requisite amount of water, by a number of manufacturers. It is probably our most effective stomach poison, for though costing more than paris green, it remains on the plant where it has been sprayed a much longer time, and is less liable to burn the foliage. Unless large quantities are to be used it is better to buy it than to make it, but if directions for making are desired, these will be supplied on application to the Agricultural Experiment Station of any state.

Ordinarily about three pounds of arsenate of lead should be mixed with fifty gallons of water to spray, but for the gypsy moth, brown-tail moth and elm-leaf beetle, five pounds should be used instead. In spraying it is necessary that the sediment should be constantly stirred, in order for it to be carried out through the pump and be evenly distributed.

PARIS GREEN.

This material is rarely as effective as the last, and is only mentioned because it may in some cases be difficult to obtain the other. One third of a pound of paris green should be mixed with half a pound of quicklime which has just been slaked in some water, and water should be added to make a total of about fifty gallons, and the whole well stirred while spraying, for the reason stated above.

SOAP.

Plant lice, leaf hoppers, etc., may generally be destroyed by spraying them with one pound of any common laundry soap dissolved in four or five gallons of water. Extreme thoroughness of application is necessary, as only those insects actually touched by the spray are affected.

KEROSENE EMULSION.

This material is more effective than soap for sucking-insects, but is more difficult to make. To prepare it, take half a pound of any hard soap shaved fine, and dissolve in a gallon of hot water. Then remove from the fire and add two gallons of kerosene and churn with a spray pump, turning the nozzle of the pump back into the mixture, which should soon become thick and therefore difficult to force through the pump. When this condition has been reached, take one part of the mixture or stock material and add it to nine parts of water, if for use on plant lice; or to six parts of water for leaf hoppers; mix well and spray. If the water is hard add some borax or soda to soften it.

Many other kinds of insects frequently attack our shade trees and shrubs, and in case of doubt as to their identity and the appropriate treatment to be given, specimens of the insect or its work can be sent to the Agricultural Experiment Station of the state in which the person desiring assistance resides. Information and advice as to the best methods of treatment for different insects are supplied by the officials of these stations, without charge.

TREES, SHRUBS AND PLANTS FOR SPECIAL PURPOSES.

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